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The Milroy Lectures
ON
THE STREPTOTRICHOSES AND TUBERCULOSIS.

Delivered before the Royal College of Physicians of London on Feb. 17th, 22nd, and 24th, 1910,

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LECTURE I.

Delivered on Feb. 17th.

MR. PRESIDENT AND FELLOWS,—I have, in the first place, to discharge a grateful obligation by expressing my sense of the honour which you have been pleased to bestow by electing me as your Milroy lecturer for the present year. And the honour is not the less appreciated in my consciousness of the liberality with which you have carried into effect the suggestion of the Founder, that selection of a Milroy lecturer by your Council should not be limited to your own Fellows and Members, but should be so extended that from time to time it might include other workers in the science of which your College is the senior corporate representative.

In choosing the subject of my lectures I have been influenced by the fact that, owing to one cause or another, during the last ten years or so somewhat special attention has been given in the Middlesex Hospital Laboratories to the investigation of cases of streptotrichosis, a class of infections which, as there can be little doubt, are commoner of occurrence than the general run of clinical records would suggest; and this quite apart from any consideration of cases recognised specially as cases of tuberculosis. Difficulties arising because of the varying morphology of the parasites causing these infections, and often difficulties in the way of obtaining cultures of the organism on artificial media, must necessarily sometimes hinder the ready recognition of the exact nature of the infection in these cases. And the more likely does it appear that the nature of the special infection is not infrequently overlooked when we consider that although some cases of streptotrichosis present certain clinical peculiarities which one would be inclined to look upon as being more or less characteristic, yet such peculiarities are seldom sufficient in a particular case to enable a definite diagnosis of the kind of infection to be made on clinical grounds and without reference to the result of bacteriological examination. There is, in short, nothing in the history or clinical indications in the majority of the numerous cases of infection of parts about the mouth and neck, and in cases of appendicitis, for examples, which would enable a diagnosis of streptotrichosis to be arrived at without bacteriological identification of the causative parasite.

But, in addition to any clinical interest, this class of infections has a wider interest because of the apparent affinity between certain undoubted species of streptotricheæ and the parasite, or parasites, of tuberculosis. Our own investigations into the pathology of streptothrix infections, together with much work bearing on the subject which has been carried out elsewhere, have led directly to a very definite conclusion as to the relationship, amounting to actual generic affinity, between this class of infections and those recognised under the name of tuberculosis. And further, systematic comparison of the biological characteristics of the recognised streptothrix organisms on the one hand, and of different "strains" of the parasite of tuberculosis on the other, leaves no doubt as to the correctness of the opinion held by certain earlier pathologists who, within a few years of Koch's announcement of his discovery of the cause of tuberculosis, maintained that the reputed bacillus was not, in fact, a fission fungus at all, but rather belonged to a higher group of mould fungi.

In what follows, after considering in some detail the general characteristics of the streptotricheæ and the pathology of the infections which they cause, I propose to deal with the evidence which is available in support of these two propositions: (1) That under the name of "tuberculosis" there are commonly included infections caused by more than one species of parasite; and (2) that the parasites, generally reputed to be bacilli, which are the cause of tuberculosis, belong in reality to a higher group of organisms, and should, as streptotricheæ, be included with the hyphomycetes, or mould fungi. Before proceeding, however, it will be well to explain some confusion which has prevailed in the past with regard to the nomenclature of streptothrix infections and which still persists to some extent. Thus, whilst in this country and in the United States the term streptotrichosis has been adopted generally, continental pathologists as a rule still favour the older designation for these infections, actinomycosis. And writers on general medicine have not always appreciated the fact that these two terms are absolutely synonymous; so that one sometimes finds, even in recent text-books, reference made to the streptotrichoses as if they were, as a class of disease, in some sort different from the actinomycoses. Confusion has been increased by the fact that the parasites of these infections have been described at one time or another under at least five different generic names—*Actinomyces*, *Cladothrix*, *Nocardia*, *Oospora*, and *Streptothrix*—three of which, *Streptothrix*, *Actinomyces*, and *Cladothrix*, are in current use.

The origin of this confusion is easily traced. In 1887 Bollinger described the disease of cattle caused by the aptly named *Actinomyces*, or ray fungus. In the following year Israel described some cases of actinomycosis in man and cattle which were caused, he believed, by one and the same parasite. In succeeding years, and until about 1890, numerous cases of disease in both man and lower animals were recorded as cases of actinomycosis; but usually the diagnosis was founded on the identification of a ray fungus in the tissues or in discharges by means of the microscope only and without the use of bacteriological methods which would allow differentiation of morphologically similar, but specifically distinct, varieties of ray fungi. Amongst British bacteriologists who had interested themselves specially in these cases Crookshank and McFadyean in 1889 expressed their belief in the specific identity of the parasite in all cases of actinomycosis in man and cattle. In 1890 Bostroem, apparently after a more thorough personal investigation than had been carried out by any other pathologist, also affirmed the belief that all cases of actinomycosis represented infection by the one ray fungus. In 1891, however, Wolff and Israel described an organism, isolated from a case of disease in man, which was clearly a ray fungus of some species different from that which hitherto had been described as the only cause of actinomycosis.

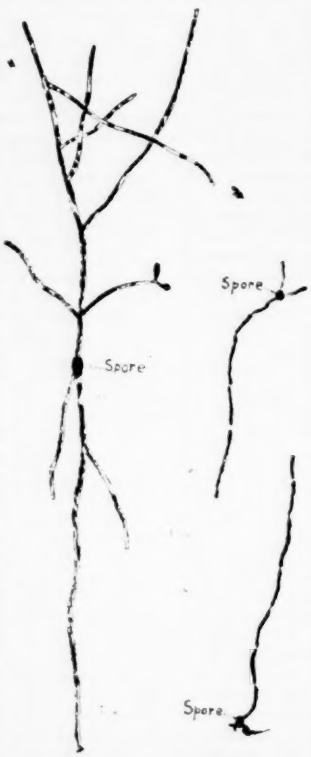
Meanwhile, in 1888, Nocard had published a very careful account of the characteristics of a parasite which had been proved to be the cause of a common disease of a tuberculous nature occurring in cattle in France and Guadeloupe and known as *farcin des bœufs*. The parasite was described as a fine, long bacillus, presenting occasional branching, which Nocard likened to the lateral branching of a common saprophytic fungus known at the time under the name of *Cladothrix dichotoma*, but since recognised as a streptothrix (*Streptothrix nigrescens*, Foulerton and Jones). Nocard's organism (*Streptothrix nocardii*) has acid-fast properties, and under the conditions of artificial infection causes a definite tuberculous condition in guinea-pigs. In 1890 Eppinger described under the name of *Cladothrix asteroides* another branching, acid-fast, organism which he isolated from an infection in man. This species, now generally known as *Streptothrix eppingeri*, has since then been repeatedly isolated from somewhat various cases of disease; and it is obvious that the results of an infection by this streptothrix also may be indistinguishable anatomically from a tuberculosis caused by Koch's bacillus. In 1894 Vincent isolated and described under the name of *Streptothrix maduræ* a parasite which he believed to be the cause of the mycosis known as madura foot, and he recognised the resemblance between the streptothrix and Bollinger's *Actinomyces*. In this way, then, confusion arose; but during recent years the nomenclature of these parasites has gradually become simplified, and, as already stated, the majority of pathologists in this country have come to a common use of the generic term streptotrichoses as the designation of infections by the streptotricheæ, or ray fungi.

THE POSITION OF THE STREPTOTRICHEÆ IN BOTANICAL CLASSIFICATION: THEIR MORPHOLOGY AND METHOD OF REPRODUCTION.

Inasmuch as it is one of the purposes of these lectures to present evidence in support of the proposition that the reputed *Bacillus tuberculosis* is a parasite—or more probably represents several parasites—which has been placed erroneously amongst the bacteria or fission fungi, when its correct position as a streptothrix would have been amongst the mould fungi, the exact position in botanical classification of the genus *Streptothrix* itself becomes of importance. For it has been held by some that the streptotricheæ are not true mould fungi; and the typical life-stages of a streptothrix, in which the organism is represented successively by a branching mycelium, by isolated rod-segments, and by spherical spores, have been interpreted as representing merely branching and coccal phases of a highly pleomorphic bacillary fission-fungus. These views are not now accepted generally, and it would not be necessary to devote time to consideration of them, were it not that the difficulties which have stood in the way of the recognition of the streptotricheæ as mould fungi are of a morphological nature, and are precisely similar to those which at the present time prevent a general recognition of the relationship between the parasite, or parasites, of tuberculosis and streptothrix organisms.

In order to determine the botanical position of the streptotricheæ the type-development of the genus may be studied by watching the development of one of the quickly growing saprophytic species in a wet preparation kept at a suitable temperature under the microscope. The progress of growth can be followed quite easily. One starts with the spore, a spherical body which differs, it may be mentioned, from the spore of a fission fungus both in its staining properties and in its comparative resistance to heat. If a single spore is kept under observation one finds that within a few hours either two or three threads have begun to sprout from it. These threads gradually elongate, so that at an early stage of growth one has a typical "ray fungus," consisting of three mycelial threads, usually of unequal length, radiating out from the position occupied by the spore as a centre. From these primary threads lateral branches in turn sprout out; and soon there is a densely tangled mass of mycelium representing the fully developed stage of the organism. The next stage, that of transverse segmentation, is most conveniently studied in cultures on solid media. The branching mycelium, which hitherto has been apparently homogeneous throughout its length, now presents differentiated transverse segments, usually of irregular extent, produced by an obvious process of degeneration extending across the mycelium. And accordingly one sees, separated by larger or less intervals, a series of rod-segments which preserve, apparently unaltered, the original characters of the mycelium. The extent of the interval between successive rod-segments varies considerably. In saprophytic species especially the intervening degenerated portions are well marked and usually occur at irregular intervals along the mycelium. In some of the slow growing pathogenic species the persistent segments may be separated by only very narrow and regularly placed intervals, so that the segmented mycelial thread has the appearance of a strepto-bacillary chain. Next there is a stage of fragmentation. The degenerated portions of the mycelium disappear and a conglomeration of separate rod-segments represents the original system of branching mycelium. These rod-segments may have a wavy or distinctly spiral shape, but, speaking generally, they are morphologically identical with bacilli, except that here and there a rod with the remains of a lateral branch still attached to it may be seen. With, or soon after, the occurrence of segmentation of the mycelium a special kind of spore formation, chain sporulation, may be observed. This process of sporulation also is best studied in cultures on solid media. In a typical instance special spore-bearing organs are developed, fine aerial hyphæ which, erecting themselves from the growth of mycelium, often cause a powdery or cretaceous appearance on the surface. Spores are produced in these aerial hyphæ apparently by a process of segmentation which is, perhaps, similar in its nature to that by which the rod forms are produced in the mycelium. Sporulation occurs in the hyphæ with uniform regularity, so that when the process is complete the appearance in a stained specimen is precisely that of a streptococcal chain. It seems probable, also, that under certain circumstances these spherical spores may be produced along the length of the mycelium as well as in the special hyphæ. When these successive phases can be clearly traced in cultures on artificial media, as in the case of saprophytic and certain freely growing pathogenic species, no difficulty as to the botanical position of the organism can arise. We have a typical hyphomyces or mould fungus with special spore-bearing organs, the aerial hyphæ.

FIG. 1.



Sporothrix. Streptothrix.
Figures show early development of mycelium from spores.

The main variations which have been observed in individual species are: (*a*) with regard to comparative rapidity of growth; (*b*) with regard to the extent of degeneration of the mycelium between the persistent rod-segments; and (*c*) with regard to the frequency of lateral branching. In respect to the last point, branching may be so infrequent in growth under parasitic conditions that the mycelial tuft is distinguishable with difficulty from a mass of strepto-bacilli.

And, indeed, with some pathogenic species identification may be a difficult matter. In some cases typical ray fungi are not to be found either in pus from the lesions or in the tissues examined. In such cases all that one may find on microscopic examination is a number of rod-segments which stain, often in a somewhat granular fashion, by Gram's method, and are occasionally acid-fast. In the examination of a specimen of the pus suspicion may be raised by the general character of the rods; they may be unusually long and fine for bacilli, usually some will have a beaded appearance, and here and there a rod may show the remains of a lateral branch. Also the pus will usually contain microscopic masses of fine granular, or dust-like, material which stains deeply by Gram's method, and probably represents the débris of mycelium which has undergone a completely destructive degeneration. These fine granules are not to be confounded with the spherical spores; their staining characters are similar, but they are much smaller, and unlike spores appear collected in large masses. In pus one may also find calcareous masses representing tufts of mycelium which have undergone a peculiar cretaceous incrustation which happens with some species. On attempting culture of the parasite in such a case one finds frequently that growth, if obtained, is very slow. On nutrient agar there may be small, whitish, dry-looking, heaped-up colonies after six or seven days' incubation, or not until after a longer period. On examining the growth the appearance of the organism may be much the same as in the pus; there are long, fine threads which stain by Gram's method, and there may be more distinct evidence of lateral branching than was seen in the pus, especially if the culture is examined at an early date of growth. Later on spherical spores will appear on the medium. The appearances in cultures obtained in fluid media, such as pepton broth, are usually somewhat different and more distinctive. After a few days' incubation small speck-like colonies appear, either cohering in a filmy mass at the bottom of the medium or adhering, isolated, to the sides

FIG. 1. FIG. 2. FIG. 3. FIG. 4. FIG. 5. FIG. 6.

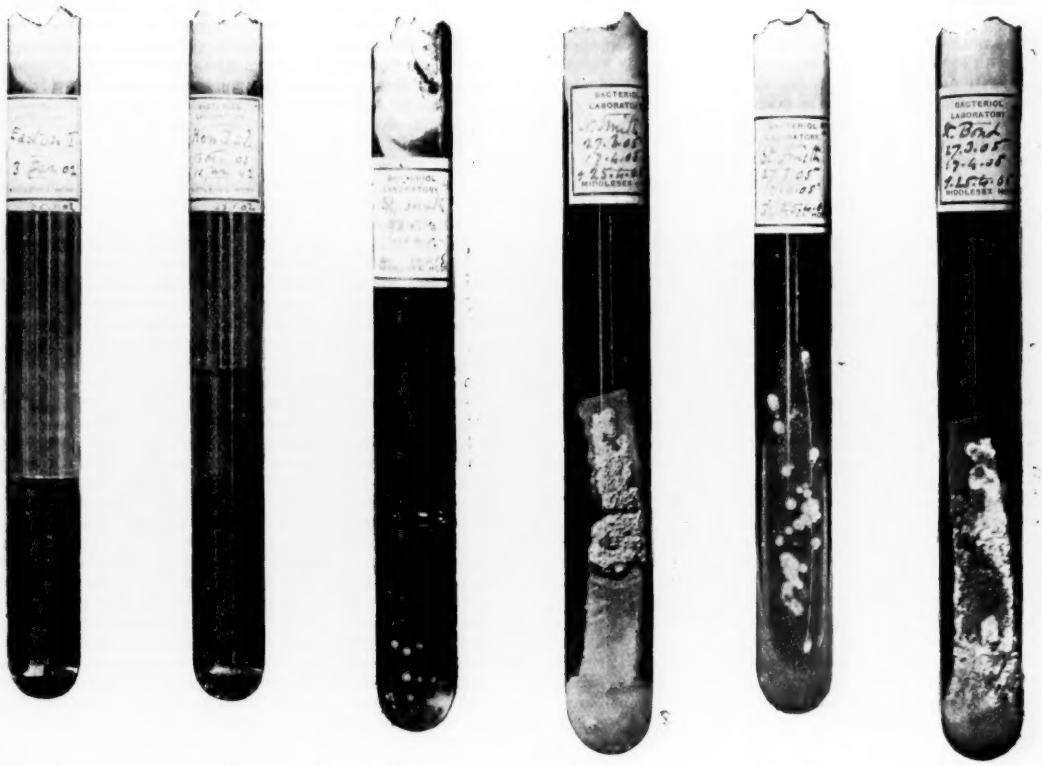


FIG. 7. FIG. 8. FIG. 9 FIG. 10. FIG. 11. FIG. 12.

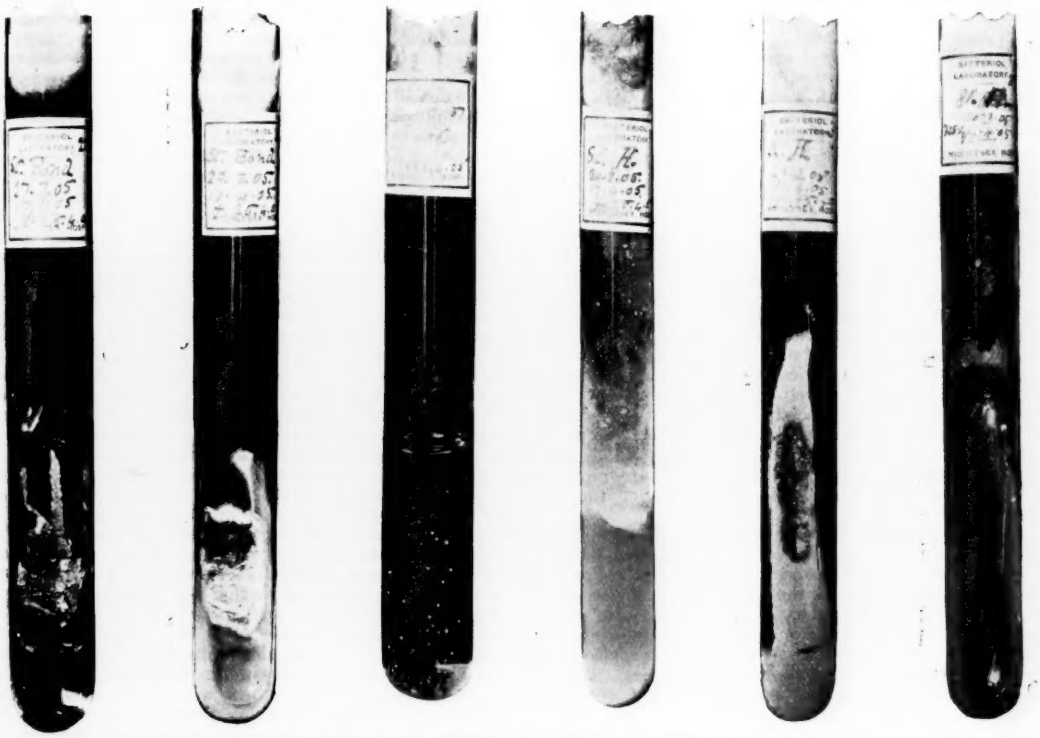


FIG. 1.—Culture of *Streptothrix hominis I.* in broth, showing small colonies adherent to the side of tube.
FIG. 2.—Culture of *Streptothrix hominis II.* in broth.
FIGS. 3, 4, 5.—Cultures in broth and on potato and serum of *Streptothrix hominis III.*
FIGS. 6, 7, 8.—Cultures on potato, gelatin, and serum of *Streptothrix hominis IV.*
FIGS. 9, 10, 11. 12.—Cultures in broth and in milk (showing characteristic change in medium), and on potato and serum of saprophytic species, *Streptothrix chalcea.*

of the tube. If these speck-like colonies are examined microscopically from time to time, they will be found to consist at first of the typical branching mycelium of a ray fungus which subsequently undergoes processes of segmentation and fragmentation, as already described. And it would appear that the difficulty in identification of some of these organisms in growth on solid media is due to the fact that segmentation and fragmentation of the mycelium follow rapidly on very slow growth. This description, it must be repeated, applies only in the case of certain slow-growing species of the type of those which I have described as *Streptothrix hominis* I. and II. In other pathogenic organisms of more vigorous growth the true type is identified as readily as in the saprophytic species.

The method of sporulation in the genus *Streptothrix* is of importance, since the rough classification of pathogenic achlorophyllous fungi into three main divisions, as adopted by pathologists for working purposes, is based mainly upon the method of reproduction which characterises the organism. Thus the bacteria, or fission fungi, are defined as unicellular organisms which reproduce themselves either by fission or by spore formation. In the one case the parent cell produces two new cells by a process of clean transverse fission; in the other case a single endogenous spore is produced, so that a single cell succeeds a single cell. The blastomycetes, or yeast fungi, are also simple unicellular organisms amongst which the new cell is produced by a process of gemmation or budding from the parent cell, or by a process of multiple endogenous spore formation in which the parent cell produces usually two, three, or four spores. In the hyphomycetes, or mould fungi, we have a more complex kind of organism in which sporulation is a function of specialised spore-bearing organs of various type, the simplest perhaps of which is represented by the aerial hyphæ of the streptotricheæ and species of some other genera. With these differences of reproductive method there are, of course, differences in general morphology to be considered. But for the pathogenic species of fungi, at any rate, the special reproductive method is in itself a sufficient criterion.

The distinguishing characteristics of the spores of yeast fungi do not enter into the present discussion, and it has only to be mentioned now that, apart from the method of their production, the spores of mould fungi may be distinguished from those of fission fungi by two tests. First, the spores of a mould fungus do not stain by the special method of Moeller used for demonstrating the spores of fission fungi, but, on the other hand, stain deeply by Gram's method. And, secondly, the resistance to heat is less in the case of the spores of mould fungi than it is with the spores of fission fungi; also the difference between the heat resistance of the active and the spore forms of a mould fungus is less than the like difference in the case of a fission fungus. Thus in a case of a bacillus with a thermic death point at about 60° C., under the usual time conditions of exposure, the thermic death point of the spores will be at about 100° C. With a streptothrix, on the other hand, if the thermic death point of the young unsegmented mycelium is at about 60° C., the thermic death point of the sporing culture will usually be at about 75° C., showing a difference of only about 15 centigrade degrees of heat as against about 40° in the case of the fission fungus. The spherical spores of the streptotricheæ correspond in every respect with the spores of a mould fungus, and, as will be pointed out when the parasites of tuberculosis are specially considered, there is a high degree of probability, amounting almost to certainty, that the reputed bacilli of tuberculosis are reproduced by the methods characteristic of species of the genus *Streptothrix*.

It has been stated that the stage of full development of the streptothrix is represented by a system of branching homogeneous mycelium: something must be added as to the biological significance of the subsequently developed rod-segments and spherical spores. As to the nature of what have been described as the spherical spores there can be no doubt, and it is probable that the rod-segments also have to be considered as being, in a sense, spore bodies. That is to say, it is probable that these rod-segments represent a more resistant form, which is capable of producing a new mycelium directly, and by means of which in cases of disease the infection commonly is transported from one part of the body of the host to another. The fully developed mycelium obviously, because of its bulk, would not pass easily from one part to another, except by steady invasion along continuous tissues; and there are reasons for believing that when living as a parasite under many of the conditions applying in case of disease a streptothrix does not readily undergo complete sporulation with the development of spherical spores. But under parasitic conditions segmentation and fragmentation of the mycelium occur freely; isolated rod-segments will be carried from part to part readily enough, and by the examination of sections through recently established secondary foci of infection it has been possible to obtain evidence microscopically of the early sprouting of branching mycelium directly from rod-segments and not from spherical spores.

It has been stated already that the view now taken of the botanical position of the streptotricheæ has not always been accepted, but that some have regarded the morphology of the genus as indicating merely more or less accidental variations of a class of highly pleomorphic fission fungi; rod-segments have been regarded as bacilli, and it has been assumed that they habitually reproduce themselves by direct division after the recognised manner of fission fungi. The branching forms also have been regarded as representing accidental aberration from a normal bacillary type, whilst the spherical bodies have been looked upon as being merely coccal involution forms. This opinion cannot now be sustained, however, against the evidence of observed facts. At the present time there can scarcely be difference of opinion as to the nature and import of the spherical spores; the life-cycle of the organism, from spore to mycelium and from mycelium again to spore, is traceable so clearly that misinterpretation is barely possible. But the position is somewhat different with regard to the question as to the direct multiplication of the rod-segments. I have referred to these as being probably resistant spore-bodies of a kind; and from what we know of the biology of others of the higher pathogenic fungi it is not impossible that under some conditions the rod-segments may reproduce themselves directly, and without intervention of the usual sporing and mycelial stages. It is true that we have at present no evidence that this multiplication of what may be termed "intermediate forms" as such actually occurs with the streptotricheæ, but we know that it does occur with the pathogenic fungus known as *Sporothrix Schenckii*, an organism resembling morphologically in some respects, and with regard to its pathogenic action closely, the species of this genus. If one follows the development of the sporothrix under conditions of culture on artificial media one observes this life cycle. The single spore sprouts, and usually three mycelial threads are produced from it; then secondary branching occurs very quickly; and, in the result, a tangled mass of mycelium, very much like that of a streptothrix, but of coarser substance, is produced. In the sporulation of this mycelium two kinds of cells, which may be regarded as being of the nature of spores, appear. Spherical endogenous bodies, which I would describe as true spores, are developed in the length of the mycelium and in aerial hyphæ like those of the streptotricheæ; and ovoid exogenous bodies, which I would term provisionally the "spore bodies," sprout out at the sides and from the ends of the mycelial threads. Under most conditions of culture on artificial media this sporothrix always reproduces itself in true fashion according to the type of a mould fungus. The spherical spores and the ovoid spore bodies never reproduce themselves as such, but, one or other, always yield a mycelium by a process of sprouting. Under parasitic conditions, however, the morphology of the sporothrix is different in that only the ovoid spore body occurs. If either a young mycelial or an older sporulating culture is inoculated under the skin of a mouse a progressive and widely spreading infection of the subcutaneous tissue follows. In the resulting granulomatous tissue vast numbers of the ovoid spore bodies will be found, but never, according to my own observations, either the mycelial form of the fungus or the spherical true spores. It appears to be quite certain that under the conditions of parasite life the intermediate ovoid form is capable of direct reproduction as such. And since the rod-segments of the streptotricheæ, like these spore bodies of the sporothrix, are capable of producing a new mycelium without an intervening spore stage, so it is possible that under parasitic conditions of existence they also may be capable of reproducing themselves directly as rod-segments, and thus simulating true bacilli.

THE SAPROPHYTIC STREPTOTRICHEÆ.

The saprophytic streptotricheæ are widely distributed; found occasionally in water and fairly frequently in air, they appear, however, to be more especially soil organisms. The saprophytic species which have been studied specially in the laboratories at the Middlesex Hospital fall within two main groups. One group includes a freely growing type of organism which yields a widely spreading growth on artificial media. The development of aerial hyphæ is usually well marked, and their appearance is often accompanied by a chalky-looking efflorescence on the surface of the growth. In most of the species growth occurs at temperatures as high as 37° C., but in one or two species which have been examined the higher temperature limit for growth is a little above 22° C. In many cases the growth gives off a pronounced "earthy" or "mouldy" smell. Many species exercise an active ferment action on media in which they may be growing, peptonising gelatin and inspissated blood serum, and exercising an active diastatic action on starch. A single species (*Streptothrix alpha*, Price Jones) amongst those which have been examined in my laboratories causes an active coagulation of milk; but several others exercise a peculiar action, possibly of the nature of a saponification, on this medium, whereby the milk clears slowly from above downwards, whilst a very fine granular deposit of altered casein is gradually thrown down. As examples of this group of saprophytic species, *Streptothrix nigrescens* (*Cladothrix dichotoma*, Cohn), *Streptothrix nigra* (Rossi-Doria), and *Streptothrix leucea saprophytica* (Foulerton) may be mentioned.

In the second group of saprophytic species there is a tendency for growth on artificial media to be within more closely circumscribed limits, and at the same time to become heaped up. The development of aerial hyphæ on the surface of the growth is marked by a dull, powdery appearance, rather than by the bright chalky efflorescence which characterises the growth of many species included in the first group. The strong mouldy smell is not in evidence, or may be very faint. Ferment action, and especially diastatic action, is apparently less common, and when it does occur is usually less vigorous than with species of the other group. Some members of this group exhibit the peculiar, possibly saponifying, action on milk which has been already referred to. With some species of this group a peculiar action on gelatin has been noted; the medium is slowly changed to a fluid which is of a syrupy consistence at a temperature of 20° C. The change is quite distinct from that caused by an active peptonisation of gelatin with the production of a freely mobile fluid, such as commonly occurs; the condition appears to result from some change which causes a lowering of the melting point of the medium, for the gelatin sets again firmly if its temperature is lowered to about 8° or 10° C.

In this second group the mycelial threads are usually finer perhaps than in the other, and some of the species approximate in their general characteristics to the slower growing pathogenic rather than to the freely growing saprophytic organisms of the first group. As examples of the second group one may instance two new chromogenic species which have been described in my laboratories, *St. chalcea*, a species of fairly free growth, and *St. erythrea*, an organism of slow growth on artificial media and resembling culturally in many respects the parasitic species.

It is not to be understood, of course, that the above general characteristics attributed to the two groups of saprophytic species are in any sense inclusive—they merely indicate outstanding characters which, singly or together, are specially noticeable in two general types of organism.

Before leaving the saprophytic species the question of their thermic death point may be just mentioned. The thermic death point for 16 saprophytic species was determined by Price Jones and myself with the following results:—

For 6 species the death point was under						45° C.		
,, 1	,,	,,	,,	,,	,,	above 45° C. and under	55° C.	
,, 4	,,	,,	,,	,,	,,	,, 45° C. ,, ,,	60° C.	
,, 3	,,	,,	,,	,,	,,	,, 60° C. ,, ,,	70° C.	
,, 2	,,	,,	,,	,,	,,	,, 60° C. ,, ,,	75° C.	

One species, *Streptothrix leucea saprophytica*, showed an unusually low resistance to heat, sporing cultures being destroyed by exposure for 30 minutes to a temperature of less than 45° C. or when kept for seven days at a temperature of 37° C. On the other hand, Kedzior has described a thermophilic streptothrix isolated from river water which grows freely at temperatures as high as 60° C.

STREPTOTRICHEÆ PARASITIC AND PATHOGENIC FOR HIGHER PLANTS AND ANIMALS LOWER THAN MAN.

The streptotricheæ have to be considered next as parasites, both of higher forms of plant life and of animals, whether as harmless or even useful associates or as definite pathogenic agents. It has been said that the saprophytic species may be considered as being especially soil organisms; frequent association with herbage is also particularly noticeable. Thus, Mazè some 12 years ago described organisms, which sometimes presented definite branching according with the streptothrix type, as forming the root colonies which attach themselves to leguminous plants, and more recent investigations into the biology of nitrogen-fixing organisms have tended to confirm the original investigations. Such colonies, it may be mentioned, are found to be especially abundant on the roots of leguminosæ when growing in a poor soil; and under these circumstances the organism performs an obviously useful function in fixing the nitrogen of the ground air and presenting it in a readily assimilable form to its vegetable host. Again, Berestnew found that streptotricheæ are especially common as parasites of grasses; cultures were readily obtained by moistening hay and dry straw with sterilised water, several species (*Streptothrix graminarum* I. and II., and others) being thus isolated and described.

The acid-fast properties of some streptotricheæ and of other apparently closely allied organisms will be referred to in detail further on. But it may be pointed out here that amongst the reputed bacilli which display acid-fast properties to a marked degree, and some of which have all the characteristics of a streptothrix, there are two (*Bacillus phlei* I. and II., Moeller) which are common parasites of Timothy grass, and several others—such as the "cow dung" bacillus and the various organisms described as "milk" and "butter" bacilli—which probably also come from a vegetable source. The acid-fast properties of the Timothy grass bacilli and the others are due, of course, to the presence of a waxy substance in their body; and the elaboration of a complex organic substance of this nature from the grass on which they live affords an interesting instance of physiological activity in these low forms of vegetable life. Then, again, when we come to consider the probable sources of streptotricheal infection for the higher animals, and after taking into consideration the fact that most of the animals which have been found to suffer from streptotrichosis are domesticated animals with whose diseases we are especially familiar, the importance of herbage as a probable habitat of pathogenic ray fungi is very noticeable. With the exception of omnivorous man and the dog and a single case of infection in the cat, all the higher animals in which streptotrichoses have been described are strictly herbivorous. The probability of infection of swine by means of grain has been shown clearly; Johne was able to demonstrate the presence of ray fungi in awns of barley found impacted in the soft palate of the pig, and Korsak found grain covered with streptothrix organisms in the crypts of the tonsil of the same animal. Direct evidence of the possibility of infection of the ox in a similar way has been obtained, and the well-known case recorded by Soltman of a boy with a streptotrichial empyema of the chest, in the pus of which an awn of barley was found, may also be cited, together with several other cases of like nature which have been collected by Acland.

Omitting for the present any reference to conditions described as tuberculosis, streptothrix infections have been described in many species of animals. First, and merely as indicating the range of distribution of the streptotricheæ as parasites, it may be mentioned that I have on one occasion isolated a typical species from the body juices of an oyster. Ascending the scale, streptotrichosis of the liver has been recorded by Terni and Galli-Valerio in two species of lizards (*L. agilis* and *L. viridis*), and the parasite (*Streptothrix lacertæ*) has been isolated and described. Streptothrix infections have also been recorded in birds; and, in particular, Rossi has described fully a species which he isolated from two cases of streptotrichosis of the liver in chickens. Also Artault in a bacteriological investigation into poultry eggs isolated two species—an organism resembling Bollinger's original ray fungus and *Streptothrix nigra*.

Of mammalia other than man the following species are known to be liable to this kind of infection. Amongst domesticated animals the ox appears to be the most susceptible. In the common streptotrichosis of the tongue in this animal, apparently caused most frequently by the original ray fungus of Bollinger, clear evidence of the usual source of infection is forthcoming. If sections are made across the tongue in early stages of the disease numerous nodules, varying in size from that of a small pea upwards, will be found situated close to the dorsal surface. Often these nodules actually involve the mucous membrane, others will be found just below it, and the condition is one which obviously results from multiple infections through abrasions of the mucous membrane. But, beyond this evidence, various writers—Piana, Kouritsine, and Neuwith—state that they have demonstrated the presence of streptothrix organisms growing on fragments of grain which have become impacted in the mucous membrane of the tongue. The streptotrichosis in cattle due to infection by Nocard's organism has been observed apparently only by French veterinary pathologists, in France and in Guadeloupe and certain other tropical islands. In addition to these, two other species (*Streptothrix bovis alba* and *S. bovis luteo-rosea*) have been described by Gasparini as infecting the ox; a third species (*Streptothrix bovis sulphurea*) described by Rivolta is probably identical with the original ray fungus of Bollinger.

After the ox the pig is, of domesticated animals, probably the most frequently affected by this kind of disease. Besides infection by Bollinger's ray fungus, another form of streptotrichosis especially affecting the muscles has been ascribed by Hertwig, Duncker, and Virchow to a distinct species, *Streptothrix musculorum suis;* but, so far as I know, no detailed description of the parasite has been published. Heinick when investigating the normal bacteriological flora of the pig's intestine found streptothrix organisms amongst others. The horse also suffers from streptotrichoses; and a species closely resembling a type of streptothrix which infects man has been isolated by Dean from a submaxillary abscess. Sheep apparently suffer from streptotrichoses but rarely; infection of the tongue, however, and a generalised form of infection have been described, but there is no definite information available as to the characteristics of the sheep parasites. From a case of an apparently tuberculous disease of the lungs in a goat Silberschmidt isolated a well-differentiated acid-fast species, which does not correspond with any species yet found in other animals. On inoculation into the guinea-pig *Streptothrix capræ* causes a general infection with typically tuberculous lesions. A case of streptotrichosis of the liver in the stag has been recorded by Schreiber; and Nocard quotes Monfallat as having proved streptotrichosis of the jaw in the llama and in the guanaco of Chili. Schmorl has described an outbreak of disease caused by a parasite described as *Streptothrix cuniculi* amongst the rabbits kept in one particular pen in the Pathological Institute at Leipzig. And, to complete the list of herbivorous animals affected, a case of streptotrichosis in the elephant has been recorded. Except for a single case of streptotrichosis in the cat described by Rivolta, the dog is the only other mammal lower than man in which this kind of infection has been definitely proved. Rabe has recorded two cases, one apparently of suppurative cellulitis and the other a peritonitis, caused by a parasite termed *Cladothrix canis*, and similar streptotrichoses in the dog have been described by Rivolta and Vachetta; but the nature of the infecting organism in the particular cases is a little doubtful. I have, however, recently received from Captain A. Whitmore, of the Indian Medical Staff, a culture of a typical streptothrix which was the cause of fatal pneumonia in a fox terrier. The well-known occasional habit of grass-eating in the dog may possibly explain partly the liability to this kind of infection.

"1910 UNION OF MIDWIVES."—Miss Mary Macarthur, secretary of the Women's Trade Union League, presided on Feb. 19th over a meeting of registered midwives at Paddington, at which it was decided to form a "1910 Union of Midwives" for the purpose of raising the status of midwives throughout the United Kingdom and of organising the calling on a national basis. Mrs. Edith Robinson was elected the first president, Miss V. Macdonald was elected honorary secretary, and Mrs. Carnegie Williams was appointed to act as honorary treasurer *pro tem.*

An Address
ON
PULMONARY TUBERCULOSIS AND FAMILY PRACTICE.

Delivered before the Wimbledon and District Medical Society on Nov. 12th, 1909,

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GENTLEMEN,—The object of this address is not to repeat prescriptions for the various manifestations which follow in the wake of infection of the lungs with the bacillus of tuberculosis. When invited to deliver an address to this association it appeared fitting to try to appreciate the honour by giving in return not details which may be obtained at the expense of a little reading, but to call attention to some points which experience shows seem to have escaped the observation and attention of the family medical man. It is possible that some of the remarks that follow may rekindle or arouse feelings of antipathy towards the newer movement connected with the care of tuberculous patients. It is, however, necessary for us to recognise conditions as they exist, and if they cannot be altered they must be met by measures which are creditable to our profession.

THE ATTITUDE OF THE HOSPITALS TOWARDS TUBERCULOUS PATIENTS.

It is no purpose of the present address to trace the development of the treatment of pulmonary tuberculosis at special hospitals. The action of certain general hospitals in the past led to the exclusion of the "consumptive" patient from the wards. It is not to be wondered at that efforts were made to remedy this condition of affairs and that a group of hospitals devoted to various diseases of the chest, and more especially tuberculosis, soon grew up. These special hospitals need funds, and they must justify their position before the public. Payment by result is excellent in the abstract, but in the case of the tuberculous poor it has led to this most lamentable sequel—that advanced cases of pulmonary tuberculosis are not admitted but relegated to the Poor-law infirmaries, which are not large enough to cope with the work. The special hospitals whose duty it was, in the initial stages at any rate of their history, to provide asylum for such patients have had to relinquish their position. To attract funds it was necessary to be able to quote favourable results, and these can only be obtained in the treatment of early cases. Such cases alone can, under treatment, lose all symptoms, even all active signs and the expectoration of tubercle bacilli. Though a great deal is said against hospitals and their effect upon general practice, I think it must be conceded that their plight is to be pitied; the public has decided that such institutions should exist; the best must be got for money's worth, and it therefore follows that the cases most likely to be cured—viz., the early ones—must be admitted to the wards to the exclusion of more advanced cases. The glowing accounts of cure arouse enthusiasm on the part of the charitable, with the result that special hospitals are able to exist, though the anxiety of the gentlemen who control the management of such institutions is extreme and can never be completely known to the public, nor even to family practitioners.

But too large a number of the tuberculous patients are not in an early stage of the disease when they apply to special hospitals for in-patient treatment; they must attend as out-patients. Such a patient may be able to attend for years, working the while or being supported by his family; too often his attendances are few in number, for obvious evidence is forthcoming that the fatigue of the visits to the hospital is associated with risk, and the patient is advised to attend no longer. These out-patients, whose numbers are very large, come not only from London and its suburbs, but experience at the Brompton Hospital shows that they will come for an opinion, at least, from Glasgow, Edinburgh, Swansea, Bristol, and Dublin. Of

course, there is no suggestion for a moment that these patients have come to obtain the advice of any individual physician attached to the hospital, but there is no doubt that a hospital devoted especially to such a study as that of tuberculous disease will catch the public eye, even in remote parts of the kingdom, and patients from such distances will continue to arrive. Is it possible to name any particular drugs which, used at special hospitals in the treatment of in- and out-patients, are followed by speedy or certain cure? Certainly not; fresh air, good feeding, and exemption from family cares do much for these cases; certain drugs increase the appetite or allay cough, and efforts are being made by vaccination to convince the profession of the utility of such a step. As you probably know, there is so much haziness of verdict that no definite answer can be given as yet on this latter point.

There are some matters that I venture to think are better attended to in our specialised hospitals than in the case of the patient who elects to attend a private medical man. To be very direct, I will ask how many of you can say that you give printed or written rules to your patients giving advice on the prevention of tuberculosis? This, however, is done by these special hospitals, and I am quite sure that a few shillings spent in supplying yourself with such rules for distribution amongst your patients would be followed by unmixed good to your patients and yourself.

But now special hospitals are taking other steps to justify their existence. Before a patient is said to be consumptive, the one certain test of the truth of the diagnosis is made—viz., the sputum is subjected to a microscopical examination, once only in positive cases, but repeatedly in doubtful suspect cases. So far as I know, the special hospitals do these microscopical examinations themselves; it even pays to run bacteriological laboratories; the public approves such laudable efforts to render diagnosis certain, and it loosens its purse-strings. Special sputum bottles are actually supplied to the patients, so that there is little excuse for negligence in bringing the sputum. Even sputum flasks are supplied to the poor at cost price, and popular lectures are given to the patients during their stay in the hospital on the nature and management of their disease.

Finally, one other step has been taken by the management of the special hospitals for tuberculosis, and in this direction the Brompton Hospital has taken a prominent place. It is no longer the one concern of the hospital to treat the affected patient, but it has now assumed the task of notifying the tuberculosis of any patient who gives assent, to the local medical officer of health. The local sanitary authorities who accept voluntary notification of pulmonary tuberculosis are those of Wimbledon, Kensington, Hammersmith, Fulham, Chelsea, Westminster, St. Marylebone, Hampstead, St. Pancras, Islington, Stoke Newington, Hackney, Holborn, Finsbury, the City, Southwark, Bermondsey, Lambeth, Wandsworth, Greenwich, Lewisham, Woolwich, and others. The medical officer of health is allowed after the medical examination of suspect tuberculous inmates of a house in which it is known a consumptive lives to send such suspect cases to the Brompton Hospital for further examination; this is known as the examination of "contact cases."

Then comes other after-care of the patients; they are helped from various charitable funds with food and even clothes. Whilst they are in the hospital their children are taken care of at home or boarded out; after leaving the hospital efforts are made to find for the patients more suitable employment. Such is a very brief survey of what a hospital does to impress the public that it is worth while to give it financial support.

THE ATTITUDE OF THE FAMILY MEDICAL ATTENDANT TOWARDS TUBERCULOUS PATIENTS.

This is a matter upon which I cannot give entirely first-hand information. My observations are based mainly on the remarks of out-patients who have been advised by their private medical attendants to seek assistance at a hospital or who have been recommended by subscribers who have letters to dispose of—the proportion of these two groups of cases is shown by observation on out-patients at the Brompton Hospital; out of 281 consecutive observations 106 were recommended by medical men to come to the hospital and 175 cases came on lay recommendation. It is obvious that in thoroughness of detail and in the real assistance given, the patient of the private medical practitioner receives nothing like the attention that the same patient receives at the hospital. It is very rare to find that the sputum has been examined for tubercle bacilli; it is quite common to find that the patient has been treated for months by the family medical attendant before he sends the case to the hospital or before the patient's forbearance has given out and he has, independently of the medical attendant's advice, sought hospital relief; in the large majority of the cases neither the patient nor the patient's friends know what is the nature of the malady from which he suffers. When he becomes a hospital patient the diagnosis is speedily made; he is told that tubercle bacilli are present in the sputum as soon as the expectoration gives positive results and is given printed rules to prevent the spread of tuberculosis.

I am quite certain that one of the difficulties which underlie the dissatisfaction of the general practitioner at the attitude of a hospital which gives itself heart and soul to pushing on developments in the management of tuberculosis of the lungs is this very logical behaviour of hospital authorities; they must exist, and they must earn subscriptions, whatever general practitioners say or do. But the same logical standpoint is taken up by practitioners, and they quite commonly say we cannot afford to take the trouble over the consumptive poor who cannot pay even moderate fees, nor can we take as much care of patients who can pay larger fees as we can of richer ones who pay very well. Moreover, as some of you will tell me, the poor are not grateful for your present of rules which if carried out would upset the home, entail further expense, and even lead to their dismissal from work, supposing their employers learn that they have consumption.

Another difficulty comes in in this way, that charitable institutions, public bodies elected by the people, charitable organisations, and charitable subscribers will have, they say, *the best* advice for the poor; with them there is no cutting the coat according to the cloth. Now, gentlemen, I am not romancing when I refer to these statements as emanating from such institutions. I can vouch for them as I have heard them uttered. I mention them to you to-night not to annoy you or to increase the mixed feelings you have with regard to hospitals, but to warn you that in the matter of pulmonary tuberculosis, and I regret to say in other directions such as the management of refractive errors, of ear trouble, adenoids, &c., you are no longer considered to be quite up to the mark. These statements have been publicly uttered by members of our profession whose experience has taught them the lamentable truth, and they are repeated by laymen and laywomen who, having collected funds for the relief of the poor, insist on getting the best value for their money. The latter will not recommend their cases to you who may not live far from this or that poor neighbourhood, but prefer to send such cases for examination and treatment to a specially trained dispensary doctor, appointed for the purpose and housed and paid a good salary, or to a large hospital. These are some facts that are not pleasant hearing, to no one of you more than to your present lecturer.

In pursuing the rôle of candid friend it is very regrettable to have to say that I think some general practitioners must be so deluged with occupations that they cannot keep abreast with the times, or they are out of sympathy, or they are indifferent, and will not learn lessons which are different from those taught to them as students. Quite recently an otherwise very able practitioner hesitated about having the sputum of his "bronchitic" (?) patient examined. Even if tubercle bacilli were present, "what difference did it make to the patient?" I glanced at the windows all closely shut, at the large fire, and I had already remarked on the very strongly benzoin-laden atmosphere. Now this patient had been treated in such a way for weeks, the sputum never had been examined, a soap-dish containing water only was fully charged with expectoration, which was subsequently proved to be teeming with tubercle bacilli. It rather terrifies one to think of the risk of contracting tuberculosis to young housemaids attending upon this lady.

But now there comes another class of general practitioner who is not ignorant, not indifferent, not one who is too sensitive to putting his patient to endless trouble and expense, but one whose philosophic view of medicine and life generally is so broad that he hesitates to cause any distress to the patients or relatives by allowing the least

risk of the truth of the diagnosis being known. One can even sympathise with such a character as this, for the old sinister meaning of tuberculosis of the lungs still terrifies many. But surely such ideas should be dispelled, the possibility of cure should be insisted upon, or if this is not likely, the patient may be encouraged in the belief that life may still last through many useful and even happy years. But this old-world physician fails in another direction in that he allows the patient to infect others; although concealing the nature of the malady he knows that it is tuberculosis which is destroying the patient. The days are gone for such a view of the proper attitude towards consumptive patients. Even if hospitals did not betray the faulty motives and methods of work of some general practitioners the daily press will, the notice "Do not spit" in your tube railways, omnibuses, and trams will, and active and increasingly large brotherhoods and sisterhoods of workers amongst the poor, health officers and others visiting the poor, will complete their downfall.

I should be the last one to say that no general practitioner treats the tuberculosis of his patients on modern lines, or assumes the modern attitude towards the problem of stamping out tuberculosis by prevention. But it is common knowledge that not only the very poor who can scarcely pay you to look after them, but those who could easily pay you, seek aid at the hospitals and are treated. It is useless to ask what our inquiry officers are doing, because they could not be expected to discover the financial position of a patient living, as I have already said, some hundreds of miles, or even much less a distance, from London. Moreover, the patients who could pay, say it is not a question of mere money, but that "my local doctor has never given me the advice or taken that care in instruction and treatment which I can receive at a hospital."

Could any spectacle be more deplorable than what exists in our midst? On the one hand are the public hospitals with all their possessions of charitable gifts and donations from the various hospital funds, their practised physicians and pathologists, and nursing staffs; moreover, with their alert business-like committees of management. These are offered to the public who may be suffering from consumption. If the patient has early disease, or if whilst an in-patient in the hospital, he gives evidence of great curability, still further boons are offered, and he may be drafted off to a sanatorium not to be converted into a confirmed invalid for the rest of his days, but to leave the institution fit to do hard bodily work. Such a patient must allow examination by a class of students; he may have to wait hours before his visit to the hospital is completed; after notification he may be obliged to have his home inspected and cleaned, &c., by local sanitary authorities, and even some cases have had to suffer dismissal from their employment when the true nature of their disease had been discovered. But not one nor even all these drawbacks prevent these patients who could pay your fees from coming to the hospitals. The feeling of prejudice against receiving help from hospitals is vanishing, or has vanished. Why should people hesitate to accept the help of charitable institutions if they are officered by acknowledged experts and if the funds by which they are maintained have the stamp of approval of Royal patronage and encouragement?

In my opinion, you have still another rival. I have referred to the class already; I mean that increasing class of women, wives or daughters of rich and leisured families, who spend their lives in "good works." Once they used to confine themselves to presenting the patients with flowers, or to reading or talking to them. Now, however, they are much more militant, and as workers under the various charitable associations they carry their interests in the welfare of hospital patients into the very homes of the latter; they become "home visitors," "health visitors," and I am told that quite a number of women of less fortunate position earn their living by such work, and receive from some body certificates of having passed examinations in subjects connected with hygiene, medicine, surgery, and midwifery, &c.

So much for what public interest is doing for people of London who *could* pay something for *your* help. On the other side of the lists you, gentlemen, stand, all possessed of qualifications which pass muster before the General Medical Council, many of you possessed of degrees and qualifications which are amongst the best in the world. And what of experience? Even in this particular you are recognised as most able men, more trustworthy than many of our continental *confrères* of the same class. The struggles that I witness amongst my general practitioner friends make me feel that much of the pleasure of our intellectual profession is taken away by the struggle for existence. Many of our less fortunate colleagues are broken on the wheel, or if too hardy for that are so embittered that they are a source of distress to their relatives and friends.

Not one of us here to-night will for a moment say that such sad pictures are necessarily due to our hospital system: there is room for reform elsewhere; no doubt our profession is overcrowded, especially in and about our large towns and cities; no doubt, too, the public generally have of late years become very sceptical of our powers of "curing"; they acknowledge that we can find out causes if we will but take the trouble, but when the question of a cure is raised, and the methods of cure, one can almost understand that our profession falls far short of the standard a trustful public expected to find in us. But we would learn more if we could. No one is more cognisant of our shortcomings in knowledge than we ourselves, and after all what does the Government of this country do to encourage medical investigation? Such work is left to us to do ourselves out of our own pockets or with the assistance given by a City Company or generous donor, or out of the fees which we ask of the public when they are obliged to seek our help.

THE REMEDY: POST-GRADUATE STUDY IN LONDON.

To come to you and merely repeat what you already have learnt to your cost, merely to join in the wail of lament which our profession constantly sends up, is no purpose of mine. Nor do I propose to offer gentle advice to you to sit down and be patient. I have no hesitation whatever in saying that I think the solution of the general practitioner's grievance can be found. You must fight the rival—a rival, mind you, which exists as an element in the competitive principle which pervades all life, all natures, and all classes of individuals—by using that rival's methods. 1. You must give some time regularly to post-graduate study, either in your old hospital or at some other. You will thus learn how clinicians and pathologists are taking different views of the problems which faced you as a student. 2. You should ally yourselves with local charitable organisations, gain the sympathy and assistance of the local clergy, and find, as hospitals do, occupation for so many of our women, married and single, in exchange for the vapid existences which they have to lead.

Does it exist? Yes; for years now the younger medical men of our colonies have been coming to our country to complete their education and to broaden their knowledge and experience. I have met many of these gentlemen, and I have rarely found that any one of them has failed in his objective. No doubt in a large proportion of these cases they have merely come to seek more letters of qualification, but even then they have no doubt of other real gains. Many others, and they are men who come from the best of our colonial universities, do not seek mere examination triumphs; they come for knowledge. It is the experience of some of us to spend some of our holidays in foreign towns, and there are few of us who can resist the temptation to visit local hospitals. One of the most striking of our experiences is how deeply post-graduate instruction has ingrained itself in continental thought. Men past middle life will spend their short holidays in further work in the wards and laboratories; as with us in this country young men from all countries will be found prosecuting further studies. There is much food for thought in this spectacle, the young men of all countries are keen on gaining knowledge in places other than their "alma mater"; abroad, men who are well established in practice do not hesitate to sacrifice holidays to doing post-graduate work and attending congresses. How different it is with the majority of general practitioners in our country when once they have settled down to practise. No doubt many of you are able to freshen yourselves in local hospitals of your own, but our recently qualified students who have held resident posts in provincial or suburban hospitals have tales to tell us of want of modern knowledge on the part of members of the staff and, worse still, because it is less easily remedied, they tell us of a want of enthusiasm and of faith that medicine and surgery will advance to better things if only we will think and act on our thoughts.

Post-graduate study amongst general practitioners in this country is in a very bad way. But it is not all your fault, the fault has been in your hospitals, for they have not hitherto catered for you in post-graduate study. Indeed, I have heard a churlish consultant say that he saw no point in giving his knowledge and experience to men who would go away and use it to their own advantage. They have not prepared short, pithy courses in subjects which have advanced beyond the conception current in your student days. These sad times are now over; several hospitals in London have now prepared most elaborate courses, well chosen, held at convenient hours not only during vacations but during terms, restricted to post-graduates only, and illustrated by actual cases. A small charge is made, well within the reach of every practitioner. I come to you to-night to ask you to bestir yourselves now to support the efforts which your old schools are making for your benefit. Expert as you may have been as students in clinical investigations, I am quite sure you will find you have forgotten much, or that much has been learnt since you were students.

But there is another form of post-graduate study which some of you have never had: I refer to post-graduate instruction in clinical pathology. There can be no doubt about it that you are uninformed in this direction, and it is equally true that you are not wise in neglecting this study. There is no reason why the spare half-crowns which go to various private clinical research associations should not go into your own pockets. A little more outlay in setting up a small laboratory would repay the sacrifice and provide each general practitioner with that zest which comes when you get closer to the enemy—the causes of disease. If you are too busy to do the work yourself it is not difficult to train a handy dispenser; now that so many of them are women there should be still greater ease in getting rather delicate observations carried out. If you would only carry out these investigations yourselves you would have less reason for believing that practice is slipping quickly away from those of you whose day as students antedated these developments. You would, moreover, be borrowing just one of those suggestions from hospitals which adopted by them have made them more attractive. Moreover, it is possible for you to borrow still further from these institutions. Have small sheets of rules for the prevention of tuberculosis distributed among your tuberculous patients; the cost is very small and the impression given by your thoughtfulness would be admirable; and further, have short talks with the heads of the families concerned on the prevention of tuberculosis.

Now I come to two other points: again I advise you to follow the hospital pattern. I would beg of you to visit the wards of a hospital for consumption, and especially of a sanatorium; do not go once but repeatedly, and watch what is being done in the way of carrying out the details of treatment—the permanent stay in bed while there is fever, the regular sleeps the patients have during the day, the nature of the diet, and above all the measures taken to prevent the disease spreading to the nursing and medical staff. The revelations you will meet with at the Frimley Sanatorium will be even greater than in the parent hospital. You will almost be inclined to laugh at the farce of keeping such healthy looking patients in any sanatorium. You must, however, realise that such appearance is not the cause but the result of the treatment carried out by the resident medical officer, Dr. M. S. Paterson. The principle of this treatment is a practical outcome of the effort to turn out tuberculous patients from a sanatorium, not hypochondriacal, timid invalids, but useful workers, who can go back to their homes often cured, and if not cured braced up by a system of exercise in manual work which has been developed to a fine art. If you will spend time at such institutions you will learn what your patients have learned; if they can teach you they will not call you in to look after them on their return home. You will have lost such patients. Can you wonder? It has been said by a colleague if the general practitioner would use the modern methods of management of pulmonary tuberculosis and would diagnose such cases in an early stage, hospitals and sanatoriums for their treatment would be unnecessary. No doubt there is much truth in this, but not the whole, because I gather that it is practically impossible to get the poorer class patients to carry out rules designed to cure this disease or prevent its spread to others, *unless they have lived in a hospital or sanatorium to learn to discipline themselves.* If you will do post-graduate work you will learn what cases can be admitted to hospitals and sanatoriums, and by availing yourselves of their help when your patients are in an early curable condition you will reduce the number of patients who come to us merely to learn that they are "too advanced for help."

CHARITABLE ASSISTANCE.

The last suggestion I would make to you is to make yourselves familiar with all the steps which must be taken if you want to secure the help, say, of the Hospital Sunday and Saturday Funds, of that magnificently organised body known as the Charity Organisation Society, and of various other societies for obtaining convalescent home letters. If you will fraternise with the local clergy your difficulty in this direction will be greatly reduced, and if you will purchase for the sum of 5*s.* the Annual Charities Register and Digest, edited by Mr. C. S. Loch, you will be enabled to do for your patients more than you have done in the past.

I must now draw my remarks to a conclusion. Possibly in your cases I have brought coals to Newcastle. I may have hurt some of your feelings, but this I will beg you to believe, that in putting these remarks on pulmonary tuberculosis and family practice before you I have done so with the definite purpose of helping you without wishing to damage our hospitals. It must be the hospitals which develop new ideas, to you falls the duty of applying those which are successful. My great fear—one which I want to help to dispel—is that general practitioners should suspect that hospitals are the enemies of the general practitioner. If they are it is not so by intention, and you are quite free, if you wish, to borrow their methods.

A Demonstration
ON
CASES OF MENTAL DISORDER

At the Medical Graduates' College and Polyclinic on Feb. 9th, 1910,

BY CHARLES A. MERCIER, M.D. LOND., F.R.C.P. LOND.,

PHYSICIAN FOR MENTAL DISEASE, CHARING CROSS HOSPITAL; LECTURER ON INSANITY, CHARING CROSS HOSPITAL MEDICAL SCHOOL.

GENTLEMEN,—The cases that I am about to demonstrate to you are cases of mental disorder, but not cases of insanity. Mental disorder and insanity are commonly supposed to be synonymous, but they are not so. There are several criteria which distinguish them, but for the moment we may confine ourselves to this one—that the persons who will explain to you to-day their mental disorders are perfectly well aware that their minds are disordered. What morbid feelings and morbid percepts they experience they know to be morbid. While the mental states are real, the patients recognise that they do not correspond with fact, and as long as that recognition is maintained there is no insanity.

This man, who, you see, is about 50 years of age, is a Hebrew. His brother is in a lunatic asylum, and he has had some trouble with his family, who have charged him also with being out of his mind. Since this charge was made against him, he has been much troubled by what he calls "suggestions" made to him by various noises—the barking of dogs, the chirruping of birds, the clashing of crockery, and the rumbling of vehicles in the streets. All these noises suggest to him the words "Jew," and "mad Jew." It is not that the birds or the dogs actually say the words. He laughs, as you see, at the notion that birds or dogs can talk, still more that the clashing of crockery or the rumbling of carts on gravel can resemble the utterance of words; but these noises do in some mysterious way "suggest" to him the opprobrious words "mad Jew," which accordingly arise in his mind whenever he hears the noises, and the suggestion is a source of great distress to him. This, gentlemen, is a case in which you can actually witness hallucinations of hearing in the making. They are not yet hallucinations, for he recognises, and states quite clearly, that he does not hear the words. He knows, and states plainly, that the sound

of the words is in his own mind alone, and is not uttered by anything or anybody in the world outside him. But the words are irresistibly suggested by the external noises. It is but a step—a long step, and a grave step, but still but a step—from this attitude of mind to the attitude that the words are actually uttered, and that he not only thinks of them but actually hears them when the noises occur. So long as he is aware, and remains convinced, that the words are in his own mind alone, so long the question of his insanity does not arise; but if he should take the view that the words are really uttered by someone else, the malady would pass the bounds of sanity. Fortunately, there is no reason to expect such a result. Already, under treatment, the suggestion is less imperative He tells you now the barking of a dog sounds to him as "bow-wow," and no longer as "jew-jew," and the chirruping of birds is more like "jip-jip" than "jew-jew." He can even, as you see, take a humorous view of the matter, and laugh at the notion that they really say such things.

The boy I now show you is suffering from tumour of the brain. Of the three classical symptoms of such a tumour—headache, vomiting, and optic neuritis—he presents but one—headache. He has had purposeless vomiting on a few occasions, but for practical purposes his only symptom was headache. But this headache was of a character that is not seen at his age—about 8 when I first saw him—except in organic disease of the brain. It occurred every day of his life. It was practically continuous, and it was so severe as to be utterly incapacitating. He could neither work nor play. He spent the greater part of every day lying down. And in addition he had, in very well characterised degree, that peculiar expression, of dazed bewilderment combined with suffering, that constitutes the *cerebral facies*, and is not seen except in organic disease of the brain. At his age, a cerebral tumour is more likely to be tubercular than of any other composition, and I thought it worth while to treat him with tuberculin. From the month in which this treatment was begun the boy has continued slowly to mend. From suffering from incapacitating headaches nearly all day every day in the week, he now averages one severe headache and two slight headaches per week. This improvement has been very slow. He has now been taking tuberculin for 18 months, but it has been very steady, and is now become very decided; and I think it may fairly be ascribed to the tuberculin. The case is not one of mental disorder, but as it is the only case in my experience in which a non-syphilitic cerebral tumour has been relieved by medical measures, I thought it would be of interest.

The young man now before you suffers from a peculiar form of vertigo which is so discrepant from all the classical forms of that troublesome malady that I had at first grave doubts of its genuineness. Careful inquiry and prolonged observation have convinced me that it is genuine. He calls it giddiness, but the feeling he experiences is that of loss of support. If he is sitting down, the chair seems to be sinking from beneath him. If he is standing or walking, the floor or the ground seems to be giving way and letting him down. It is pronounced at twilight and in the dark, and on several occasions, so he says, he has actually fallen down. It is also aggravated after meals, and he suffers very much from dyspepsia, and this combination led to the surmise that it might be a case of Charcot's *vertige stomachale*, but though his dyspepsia has yielded to treatment, the feeling of sinking has not diminished, and since the dyspepsia has been relieved he has had one or two falls. The sensation of the giving way of the support beneath one is not unfamiliar to most people as they are falling off to sleep; and this again comes into line with the similarity of many delusions to dreams; so that I should be afraid that there is in this case some subtle disorder of cerebral function allied to that which occurs in delusion, and which is for the most part beyond the reach of our remedies.

This young woman presents an ordinary case of mental depression. She came to me two years ago on the same account. She was miserable with an uncalled-for misery which was not justified by anything in the circumstances of her life. She also suffered from incapacitating headaches. She is blind of one eye and has some hypermetropia in the other, and was in the habit of doing a good deal of needlework by artificial light. This was quite enough to account for her headaches, and when the eyestrain was abolished by appropriate glasses, her headaches disappeared. Under appropriate treatment her depression also was relieved, and she has remained well until now. She has no delusion; she is merely miserable without knowing why or wherefore. I need not say that depression in itself is no indication of mental disorder; there are circumstances under which it would be morbid for a person not to be depressed. If a man has lost all his money, if his sons have disgraced him, his daughters are gone on the streets, and his wife has run away from him, and if he is in addition suffering from cancer of the tongue, it would show a morbid state of mind if he were boisterously happy. Morbid depression is depression without the justification of depressing circumstances, and that is the depression from which this poor woman suffers. What exactly is the cause of such unjustified depression we do not know. All we know is that there are persons who are peculiarly subject to it, and that there are others who seem to be immune from it. In those who are prone to it we can often trace any particular attack to some provoking occasion—to a shock of grief, or terror, or to the strain of anxiety, or some other stress; but often, as in this case, we can find no provocative occasion. In such cases we are apt to speculate upon the existence of a toxin; but though there are cases in which this hypothesis seems plausible, there are many in which nothing of the kind can be even plausibly supposed.

The woman you now see is infested with lice. They are of two kinds, grey lice and yellow lice, and they infest not only her scalp but her whole body. They bore holes in her back and swarm out of her spine. She finds them in her urine, in her clothes, in her hair, and everywhere about her. She will remind you of the woman I showed here last year, who was infested by a rat. That patient borrowed a dog from a rat-catcher, stripped, and got into a bath, leaving her clothes for the dog to investigate; but on resuming her garments the rat was still there. By appropriate treatment the rat was got rid of, and the manner of its disappearance is noteworthy. When she was shown here it had diminished to the size of a mouse. It continued to dwindle till it became no larger than a black-beetle, and at length no larger than a fly; and as I have not seen her for some months I suppose it has now disappeared altogether. Under the agitation of seeing you the lice have reappeared in this patient, but for some weeks they have been gradually diminishing. The yellow lice have disappeared altogether, and only the grey are left, and this morning even the grey were limited to her ankles, with an occasional excursion as far as her knees. I am sorry to find that this afternoon they are again in her scalp, but that, I trust, is but a temporary excursion.

PERICARDIAL EFFUSION: ITS DIAGNOSIS AND TREATMENT.[1]

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IN opening the discussion on pericardial effusion I am asked to draw attention to the limitations imposed—viz., that it must deal with cases in which the diagnosis is certain and established by post-mortem examination or operation. Though this restriction must be strictly observed in the spirit, cases which have recovered without operation can hardly be absolutely excluded provided the diagnosis is not open to question. Still, speakers are requested not to take undue advantage of the license thus accorded.

I presume that except in purulent pericarditis the effusions must be of considerable size. Purulent pericardial effusions may be small, but their early diagnosis is important. Large pericardial effusions are for the most part serous, some are hæmorrhagic, and some are purulent. Hæmorrhagic effusions are rare.

In hæmopericardium where the effusion is pure blood the hæmorrhage is usually due to traumatic laceration of the heart or of some large vessel within the pericardium, or if consequent on disease to the bursting of an aneurysm at the root of the aorta, or to rupture of the heart itself. Another group of cases is recorded as met with in the course of

[1] An introduction to the discussion on the subject at the Medical Section of the Royal Society of Medicine on Feb. 22nd, 1910.

scurvy, mostly from Russia and East German sources. No instance of this kind, as far as I know, has been reported from this country.

A few cases are recorded in association with tubercle or new growth, but here, again, I think the cause of the hæmorrhage is to be sought in gross lesions of a large vessel or the heart. Blood-stained fluid as distinguished from pure blood is not so rare, though still rare enough. As in the pleura, it is usually associated with tubercle or new growth.

With granular kidney pericarditis is not uncommon, but usually with little or no effusion and often with few symptoms. Sometimes the effusion is large. It may contain a considerable amount of blood or even be pure blood. Hæmorrhagic effusion of any kind in granular kidney is rare enough for every case to be recorded, even if it has been moderate in amount or discovered only at the necropsy.[2]

For the purposes of this discussion it will be well to focus attention upon the two commonest forms—viz., (1) large serous effusion; and (2) purulent effusions, large and small.

Serous Pericardial Effusion.

These cases may be placed in two groups, the inflammatory and the non-inflammatory or dropsical. Small amounts of serous fluid are commonly found in the pericardial sac post mortem and are probably produced in the process of dying, but in general dropsy the amount may be larger and reach several ounces. Large dropsical effusions may occur in connexion with mediastinal new growth. It is only these that are likely to produce symptoms, and then mechanically owing to their size. With these exceptions serous pericardial effusion is usually inflammatory in origin and occurs in the course of rheumatic fever, to which disease nearly all cases of so-called primary pericarditis with serous effusion are to be referred. These rheumatic cases form the most convenient group for discussion, especially as in them the gradual development of the effusion may be watched and studied.

The Physical Signs of Pericardial Effusion.

One of the earliest results of pericarditis is general dilatation of the heart. The cause of the dilatation is simple. The visceral layer of the pericardium is a thin membrane covering the surface, attached to and continuous with the fibrous meshwork of the myocardium, which carry the blood-vessels and lymphatics and within the meshes of which the muscular bundles lie. The inflammation of the visceral pericardium must necessarily involve, therefore, this intermuscular meshwork and affect the muscular tissue adjacent to it. Thus with every pericarditis there must be more or less of myocarditis associated, and consequently of cardiac weakness, which will show itself in dilatation. The degree of myocarditis varies, and may be considerable even where the pericarditis itself seems slight, but is certain to be considerable when the pericarditis is severe.

When pericarditis sets in one of the earliest physical signs is an increase of the cardiac dulness outwards and upwards on the left side along the third left space or rib. This leads to the disappearance of the cardio-mediastinal notch described by Sibson and named after him *Sibson's notch*. This widening of the cardiac dulness at the left base is often given as a sign of pericardial effusion, but I do not think this is correct, for it is often seen in cases of pericarditis where no other signs of fluid occur, as well as in other forms of heart lesion where there is no pericarditis at all. It is, I believe, due to dilatation of the left auricle, which is so much thinner than the ventricle, that the same amount of inflammation spreading into it from the pericardium would produce a much greater effect than upon the ventricle, and therefore lead to earlier dilatation.

Another early sign is the disappearance of the cardio-hepatic notch on the right side called *Rotch's notch or angle*. Rotch's notch is difficult to make out satisfactorily in health, even by those who are skilful in percussion. Moreover, it is not constant and its disappearance is not conclusive of pericardial effusion. In pericarditis it is, I believe, due to early dilatation of the right auricle just like that of the left auricle in the former case.

Both Sibson's notch and Rotch's notch acquired their chief importance from the results of experimental injections into the pericardium. These injections were made when the body was lying flat upon the back, but the results of these injections vary, as would be anticipated, with the position of the body; this has been clearly demonstrated by Aposti and Figaroli.[3] Neither of these signs, then, is of much practical value as signs of fluid and as distinguishing effusion from dilatation.

Another reason given for both these signs is that the heart sinks in the serous fluid, so that in the recumbent position it would sink away from the sternum and ribs in these places and allow the fluid to float up into them. It is quite true that the heart when removed from the body full of blood will sink in serum, but it must be remembered that the heart is not quite free to move in the chest, but is attached at the base by the great vessels, and at the diaphragm by the vena cava. When the pericardium becomes distended with fluid the heart does fall away from the front of the chest, but least of all at the places named. The distension of the sac upwards at the base draws with it the big vessels and the heart with them. This is a part explanation, at any rate, of the rising of the apex beat from the fifth to the fourth space, which is also given as an early sign of effusion. As the distension increases it pushes back the lungs from the front on both sides, right and left, and so the area of cardiac dulness rapidly increases in all directions.

If the dulness downwards and outwards to the left can be shown to extend distinctly beyond the place where the apex of the heart is located this is one of the most conclusive signs of effusion, but though it is easy to fix by percussion the extent of the pericardial dulness it is not always easy to fix the exact position of the apex either by palpation or auscultation. If the amount of fluid be very large indeed it may thrust the diaphragm down and the left lobe of the liver with it so that there may be a distinct bulging or prominence in the epigastrium in which pulsation may be felt (Auenbrugger's sign). But, on the other hand, in some cases, as in one I recorded, there may be distinct epigastric depression.[4] These epigastric signs, though very obvious when the effusion is very large, cannot be distinguished in smaller effusions from somewhat similar signs seen where the right side of the heart is greatly distended.

Systolic recession of the epigastrium is sometimes very striking where the effusion is large, and so far may distinguish effusion from dilatation of the right side of the heart, where the systole is usually associated with protrusion and not with recession; but I have seen systolic recession in the epigastrium well marked with adherent pericardium, and I believe it occurs also without either pericardial adhesion or effusion in some cases of dilated right ventricle.

Distension of the pericardial sac by effusion will, of course, produce great increase in the size of the præcordial dulness. When a sac becomes distended it tends to assume a globular shape, unless prevented in some way. There are three directions where the distension is somewhat restricted—viz., the base where the pericardium has its attachment to the mediastinum, in front where it is in contact with the walls of the thorax, and below where it lies on the central tendon of the diaphragm. The increase, therefore, will be most marked transversely, and may be sometimes described as enormous. Thus in a recent case in a young man the dulness reached from two inches outside the right nipple line to four inches outside the left, and the transverse measurement was about ten inches. The præcordial dulness is often described as pear-shaped, and importance is attached by some writers to the shape in the diagnosis between pericardial effusion and dilatation of the heart. Statements differ as to the direction of the stalk of the pear, some placing it upwards at the base, others downwards at the apex, others asserting that in the smaller effusions it points upwards, in the larger effusions downwards. As a matter of fact, these descriptions are more or less fanciful and are of no help in diagnosis.

Two other signs are yielded by percussion. The one is called Bamberger's sign and has been also described by Ewart. This is a small quadrilateral patch of dulness in the left interscapular space. The other is dulness over the lower lobe of the left lung posteriorly. This, however, is common enough in morbus cordis where a dilated left auricle presses upon the root of the left lung, or where a greatly dilated left ventricle compresses the lower lobe of the lung directly.

[2] Records of 12 cases collected by F. Bryant, Boston Medical Journal, clii., 18.

[3] Centralblatt für Innere Medicin, 1900, No. 29.

[4] West: Transactions of the Royal Medical and Chirurgical Society, vol. lxvi., p. 252. Clifford Allbutt: THE LANCET, Jan. 27th, 1882.

Even if these two signs were of any special value they would be of little practical use, as a patient with a large pericardial effusion is, as a rule, too ill to bear the necessary physical examination.

Of the auscultation signs, there is something to be said upon the subject of friction. It is often stated that the friction which has been present at first disappears as effusion forms and returns as the effusion is absorbed. This is true in a general way, but requires qualification. It is correct of friction at the apex, but not of friction at the base or along the sternum. It is asserted that it must necessarily be so because friction can only occur when the two layers of the pericardium are in contact, and as in the recumbent position when effusion forms the heart sinks away from the front, so the two layers must be separated, while if the patient be sat up and made to bend forward the friction which was absent in the recumbent position may become audible again. However, it is a fact that, even in the recumbent position and with a large effusion, friction at the base may be very loud. Whatever explanation of this may be given the fact should be more generally recognised, for too emphatic insistence upon the absence of friction may lead to mistakes in diagnosis.

I recall one case in which the diagnosis lay between a large pericardial effusion and a mediastinal new growth involving the pericardium. Decision was given against pericardial effusion because of the loud friction which was heard over a wide area of the præcordial dulness at the base and along the middle of the sternum. Paracentesis was not performed. The patient died and nothing was found at the necropsy but serous effusion in an unthickened pericardial sac. The life, I believe, might have been saved by paracentesis. I may remark in passing that double aortic disease with a greatly dilated left ventricle may for a time closely resemble pericardial effusion with friction, though soon the diagnosis becomes clear. The heart sounds, as would be expected, are muffled, faint, or almost absent. Yet this is not conclusive, for as great muffling and weakness may be observed in cases of extreme dilatation.

It may be taken for granted that the intrapericardial pressure in effusion is considerable, but I do not know of any manometric observations by which the actual pressure has been measured. In a large purulent pericardial effusion which was opened I have seen the pus ejected from the incision for several inches in a forcible jet. Fluid under such pressure ought seriously to embarrass the heart, for it would especially interfere with diastole, especially that of the auricles. Consequently we should expect the cervical veins to be distended and to pulsate and a certain amount of cyanosis to be present. The action of the ventricles should be interfered with also, so that the pulse would be small and probably irregular. That, of course, is so. Yet it is extraordinary how little the mere mechanical conditions often seem to affect the heart's action and how little cardiac distress even a large effusion may be associated with. This would suggest that when the cardiac distress is great there is some other factor to account for it. This factor is, I believe, the myocardial change associated with the pericarditis to which I have already referred.

In all descriptions of the pulse in pericarditis the pulsus paradoxus, or pulsus cum inspiratione intermittens, is mentioned. Yet in pericardial effusion the pulsus paradoxus is rare, and when met with is not due to pericarditis or to effusion—i.e., to nothing within the pericardium, but to changes outside the pericardium in the mediastinum—i.e., to what is called mediastino-pericarditis or, better, mediastinitis fibrosa. The pulsus paradoxus is not, in my opinion, merely an extreme form of the respiratory curve of the pulse. If it were, it ought to be frequently met with in weak hearts, and it is not. It is due to a band or adhesion so situated that as the chest expands on inspiration the aorta is pinched and the circulation through it so far impeded that the pulse is not produced. Any way, the true pulsus paradoxus—i.e., where the pulse beat entirely disappears during inspiration—is a very rare phenomenon in pericarditis.

Empyema pulsans is that peculiar form of empyema in which the impulse of the heart is conveyed through the empyema to the chest wall in such a way as to be seen or felt. It might be anticipated that such impulse would be frequent in pericardial effusion. But it is practically unknown. If anything be felt at all it is but in diffuse shock of an indefinite kind, but often even this is absent, except, perhaps, in the epigastrium.

In general symptoms there is nothing characteristic. The patients are sometimes dusky, and may be cyanosed, but extreme pallor is more frequent than cyanosis.

Patients prefer the semi-recumbent position on the back with the shoulders raised, the object being, as in other forms of heart disease, to throw the weight off the rest of the lungs on to the tendinous portion of the diaphragm, as well as to give free play to the lungs. There is nothing in the appearance of the patient, the decubitus, the dyspnœa, or general condition which can be considered characteristic of pericardial effusion—i.e., nothing which is not met with in morbus cordis or allied conditions.

In respect of the symptoms there is one general statement which may be made—viz., that the more rapid the development of the effusion the more severe the symptoms are likely to be. In other words, a large effusion which has taken some little time to form, so that the heart and lungs have had time to adjust themselves, may be attended with much less distress than a much smaller effusion which has formed rapidly and has not given so much time for compensation. Thus a sudden hæmorrhage into the pericardium may cause death in a few minutes, not from the loss of blood but from cardiac syncope or shock. On the other hand, even with acute effusion in rheumatic fever, if the effusion has taken some days to develop, as it often does, the symptoms may be much less severe than might be expected, and in some chronic effusions even of great size it is the physical signs rather than the patients' distress that attract attention.

Diagnosis.

It is from dilatation of the heart generally that pericardial effusion has to be distinguished, for though under ordinary circumstances no confusion is likely to arise, yet between extreme cardiac dilatation and a large pericardial effusion mistakes in diagnosis are by no means unlikely, as the records of paracentesis pericardii show. I have on many occasions been asked to tap the pericardium in cases in which I thought, as the course showed, there was really nothing but dilatation present. To puncture the pericardium is an innocent proceeding, but to puncture a greatly dilated, and therefore thin-walled, heart is very risky, and has often proved fatal. It is not the mere puncture, provided the needle goes right through the wall, but the laceration produced by the movement of the heart upon the point of the needle.

The diagnosis rests entirely on physical signs, for, as has been stated, there is nothing in the general condition or symptoms of the patient which is characteristic, though when the patient has been under observation, so that the development of the effusion has been watched, the diagnosis is easy. The most conclusive sign is given by percussion, for though there is nothing characteristic in the shape of the pericardial dulness, still, if the dulness can be shown to extend distinctly to the left and downwards beyond where the apex of the heart is located the diagnosis is certain. With dilatation the impulse can usually he made out as far as the dulness extends at the apex, and there is often a wavy impulse to be seen and felt in the left intercostal spaces above, unless the action of the heart be extremely feeble, as it may be where the dilatation is extreme. The sounds also, though weak in both cases, may be completely absent with pericardial effusion, except perhaps at the base, while with dilatation they are generally audible to some extent even down to the apex. The epigastrium may be prominent in both cases, but the prominence is more marked in large effusions, and while in pericardial effusion there is often systolic recession, in dilatation there is mostly systolic protrusion. Time aids largely in the diagnosis, for though when first seen the dilated heart may be so feeble that its beating is hardly to be detected, it soon recovers itself sufficiently to make the diagnosis clear. As the cases are rarely so urgent as to require immediate operation it is safe to wait awhile, and in a very short time what has been obscure may become plain. I have not myself had the misfortune to tap a dilated heart by mistake for an effusion, but I have often had difficulty in making up my mind, when the case has first come under my observation, whether I had dilatation or effusion to deal with. A mediastinal growth involving the pericardium may sometimes give difficulty, or a mediastinal cyst. Theoretically, an intrapericardial

aneurysm may also cause difficulty, but I cannot remember, out of several instances of such aneurysms under my own observation, a single one in which even the suspicion of pericardial effusion was aroused.

X ray examination might be expected to aid in the diagnosis; it might show more marked pulsation with dilatation than with effusion. With a dilated right heart on deep inspiration a clear space is visible corresponding with Rotch's notch, the cardio-phrenic area. This is said to be absent in effusion. The difficulty of X ray examination lies in the fact that the patients are too ill to be taken to the apparatus, and its use in the wards on patients in bed is often unsatisfactory.

The blood examination in serous pericarditis gives, I believe, no useful information. In the rheumatic cases the changes would be those of rheumatic fever only. But in the case of suspected tubercle the various tubercular reactions might be of some assistance.

The Treatment of Serous Pericardial Effusion.

I need not discuss the general treatment of pericarditis or pericardial effusion by drugs, counter irritation, leeches, or other measures, for there is nothing new to add. I will confine myself to the consideration of paracentesis.

First, let me say that paracentesis is rarely necessary, for serous effusions in the course of rheumatic fever usually disappear spontaneously, and often produce no urgent symptoms. Absorption when it once begins is rapid, more rapid than in the pleura. The effusion is, no doubt, removed in the same way, by the lymphatic pump, worked by the respiratory movements on the one side and by the cardiac on the other. Though I have frequently tapped the pericardium, and am always glad to have the opportunity, I must confess that the necessity rarely arises. Even so large an effusion as that to which I have referred disappeared spontaneously, and recovery was complete, so that there are now no signs even of adhesion of the pericardium. The method is easy and safe with care. An exploration should be made first with a small needle. The needle must be sharp, the hand placed firmly upon the chest, and the puncture made by the fingers rather than by a thrust of the hand and arm. This will avoid anything like a jump when the needle penetrates the thorax, which might take it too far and possibly injure the heart. The only fatal result I ever saw in a case of paracentesis for serous effusion was due to the laceration of the heart by the sudden jump of the needle. The great secret of safety is to have a sharp, hollow needle, and to insert it with a gentle, firm pressure. I have never had any accident myself.

Exploratory punctures may be made in any place if the physical signs suggest it. I have tapped, for instance, at the base on the left side and even on the right. In the latter case my puncture withdrew blood only and the withdrawal of the needle was followed by the immediate formation of a blood tumour under the skin the size of a swan's egg. Nothing further, however, happened; the blood was rapidly absorbed and the physical signs which had suggested the site of puncture disappeared.

In an ordinary case when the diagnosis is clear and there is choice of place given the sites selected and advocated have been four. 1. In Sibson's notch—i.e., in the third left intercostal space near the sternum—a dangerous place on account of the proximity of the left auricle. 2. In Rotch's angle, in the fifth right intercostal space, to the right of the sternum, another risky place because the right auricle cannot be far away, even if the effusion be of large size. Sears, in a recent paper,[5] says that he has tapped many times in this position, but generally without obtaining fluid. Schaposnikoff says the third or fourth space on the right side is better and safer than the fifth, but both are risky. The choice of Sibson's notch or Rotch's angle is based upon the experimental injections, which I have already referred to and stated to be inconclusive. 3. The fifth space to the left of the sternum. This spot is advocated because the puncture is made in the spot which is not covered with lung and so the pleura is not perforated. Though this may be a good place for trephining the thorax with a view to incising the pericardium, it is not the best place for paracentesis. Nor need the risk of puncturing the pleura with the needle or with a fairly large trocar and cannula be seriously considered. In paracentesis the mere perforation of the pleura on the way to the pericardium does no harm. I have seen cases in which—where the needle inserted had perforated the pericardium, but the cannula could not be made to penetrate it—the fluid has leaked into the pleura and been absorbed rapidly or subsequently removed from the pleura by tapping, in each case with rapid recovery of the pericardium. 4. The safest place is the fifth or sixth intercostal space outside the left nipple line but well within the area of dulness, for here, owing to the displacement of the heart upwards and the distension of the pericardium outwards, is the widest space between the heart and seat of puncture. This is the place I advocate and choose. All the fluid that can be obtained should be removed. Often it does not re-accumulate, but if it should a second and third paracentesis may be performed or as many as necessary. Cases are recorded in which the paracentesis has been performed many times.

Besides the acute effusions which are generally the result of rheumatic fever, there is a group of chronic effusions the origin of which is not so clear; some are associated with new growth in the mediastinum, or near it. Others, perhaps, with tubercle, though this is rare, and some without obvious cause; of this the case I have already referred to was an instance. In this there was a large area of pericardial and mediastinal dulness, which was thought to be due to a new growth, because of the loudness of the pericardial friction, and was on that account not tapped, unfortunately, as it happened, because the necropsy showed nothing but pericardial effusion. One of the most remarkable cases of the kind I recorded some years ago, in which paracentesis was frequently performed for what was thought to be probably a mediastinal cyst. The patient lived 4½ years after the paracentesis and was tapped many times. On his death no mediastinal cyst was found, but only an enormously distended and thickened pericardium.

Purulent Pericarditis.

In purulent pericarditis the effusions are, as a rule, much smaller. When large they yield the same general signs as serous effusions do, and the purulent nature of the effusion even if suspected can only be proved by puncture. The smaller effusions are much more difficult to diagnose, as the pus is often in pockets or pouches, while the rest of the pericardium is adherent. Thus very irregular areas of cardiac dulness are sometimes presented. In manifest pyæmia the diagnosis of purulent pericarditis may be made on general principles, the heart showing something wrong, which is not due to valvular disease.

Leucocytosis would only suggest pus somewhere in the body but not necessarily in the pericardium, and pericardial effusion in the course of pyæmia is not necessarily purulent any more than pleuritic effusion is. In most cases of pyæmia purulent pericarditis is not diagnosed either because the symptoms are masked or because there are no definite cardiac symptoms at all. In others the diagnosis may be made of left-sided empyema, and on opening the side, after finding or not finding pus in the pleura, the pericardial sac may be felt bulging, and incision through the pleural opening shows that it contains pus.

One very interesting and important group of cases is that in which the purulent pericarditis accompanies or follows pneumonia. It frequently causes no suggestive symptoms and may be altogether latent. During the acute stage the pericarditis may be very acute and the pericardium be found post mortem covered with flaky yellow pus, but there is little fluid as a rule and that for the most part sero-purulent. It is after the pneumonia is well over that the most remarkable cases occur. I have more than once during what appeared to be a normal and satisfactory convalescence had the patient suddenly die without apparent reason, and post mortem the pericardium has been found full of pus, often with a double empyema. As the physical signs must have been obvious enough, the diagnosis could hardly have been missed if careful examination had been made, so that I now make it an invariable rule, whether there seems reason or not, to examine a convalescent from pneumonia every two or three days to avoid being caught napping, as I have been once or twice.

An empyema following pneumonia is generally associated with an irregular temperature curve, but not always, and I believe that purulent pericarditis is still more often latent and afebrile. It is specially unfortunate when these cases are overlooked, because just as pneumococcal empyema is of

[5] Boston Medical and Surgical Journal, cxliii., 24.

favourable prognosis, so I believe is pneumococcal pericarditis when recognised and incised.

Purulent pericarditis may become quiescent and the pus inspissate, as many specimens in our museums show. There is no instance, so far as I know, of the pus in the pericardium spontaneously discharging itself either internally or externally. If pus points over the pericardium it is an empyema pointing in a peculiar place, or an abscess connected with the chest wall, but not a purulent pericarditis.

In many cases of latent purulent pericarditis death is sudden. This is due to cardiac syncope, the result of the myocardial changes which are more extreme with purulent than with other forms of pericarditis.

The examination of the blood is not likely to be of much assistance in diagnosis, but there are not many observations upon the blood in purulent pericarditis recorded.

Of the bacteriology, too, there is much to learn. The pneumococcus has been frequently found in the metapneumonic cases, and in the pyæmic cases the streptococcus, staphylococcus, and other bacteria.

On both these subjects we may hope that the present discussion will add to our knowledge.

Treatment of Purulent Pericarditis.

If pus has been shown to be present by exploratory puncture it must be evacuated either by paracentesis or by incision. It may seem strange to speak of the cure of purulent effusion by paracentesis only, yet this is well known in empyema, and the pericardium seems even more favourably placed for cure than the pleura. Nowadays one never sees an empyema treated by paracentesis, but when the operation for empyema was not so successful in its results, paracentesis was usually tried first and incision only resorted to if paracentesis failed. I have had many cases of empyema cured by paracentesis in my own experience and some of purulent pericarditis, and in the statistics of paracentesis pericardii there are many others recorded.

I recall one case in a girl in which I diagnosed purulent pericarditis, and after establishing the diagnosis by exploration I proceeded to introduce a trocar and cannula. However, the instrument was rather blunt, and when I could not penetrate the pericardium without using more force than I thought prudent I stopped the operation, intending to use a sharper instrument the next day. However, in a few hours all signs of pericardial effusion had disappeared, and in its place signs of pleural effusion had developed at the left base. This was tapped then instead, a good many ounces of pus removed, and rapid recovery followed. The pus from the pericardium had obviously drained out through the puncture into the pericardium and had discharged itself into the pleura.

Nowadays in suspected purulent pericarditis puncture is usually made for diagnosis, and if pus is found the treatment is incision.

Bearing in mind the fact that the pus in the pericardium may be in a pouch or pocket and not generally in the pericardial sac, it is well to do what is the rule with a localised empyema: after the pus has been found with the needle, to leave the needle in, use it as a director or guide, and follow it down with the knife till the pus is reached. If, however, the case is of such a kind that free choice of site may be made, there are only two places that need be considered. 1. In the left nipple line or slightly outside it within the area of dulness. 2. To the left of the sternum in the fifth interspace.

1. The objections to selecting the left nipple line region are two: (*a*) That the left pleural cavity would be opened. Experience proves this objection is not so serious as theory would suppose, for pneumothorax does not occur, or at any rate collapse of the lung does not, nor if the opening be free does the pus gain access to the pleura. Even if it did, as in the case mentioned as occurring after paracentesis, it is easily evacuated and may be cured by paracentesis. Hydatids of the liver have been frequently and deliberately opened from behind through the ribs and pleura without empyema following. (*b*) After the incision is made and the pus evacuated the pericardium contracts, and the tube inserted then runs horizontally for two or three inches from the external opening. This objection does not seem to be of much importance judging by experience. It does not seem necessary always to retain the tube, for after the pus has been evacuated it does not usually seem to reform, and the pericardial sac closes in all round the heart, so that in the course of a day or two the sac is completely obliterated, as many necropsies show. This is illustrated by the specimen taken from a case in which the side was opened for what was thought to be an empyema. When the finger was inserted the bulging pericardium was felt. This was incised and a large amount of pus evacuated. The case was one of pyæmia, and the lad died two days later, when the pericardium was found adherent over the whole heart, and contained no pus.

2. The left of the sternum in the fourth or fifth space is the favourite place among surgeons, and perhaps rightly in those cases in which it is fair to assume that there are no adhesions here, and the pus occupies the whole sac. To be sure of this is, however, just the difficulty. It is not the safest place for exploratory puncture, as has been already stated, and we cannot be sure that the pus is anywhere else except where it has been found by the needle. Operation in this place may avoid opening the pleura, but not of necessity; on the other hand, it involves trephining the thorax there or excision of a portion of the fourth and fifth ribs. This being done, the operation is simple, for the pericardium can be exposed and carefully incised and the finger introduced into the sac. If nothing be discovered then the wound can be closed, but the removal of ribs takes time to recover from. Still, it is generally wiser when pus has been found with the needle to use the needle as a director and follow it down till the pus is reached, and as most exploratory punctures are made in the left axillary line or thereabouts the incision is made here too.

Wimpole-street, W.

A SINGULAR COMBINATION OF FRACTURES OF THE LEG.

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FIG. 1 illustrates the association in the same subject of an abduction fracture of the ankle-joint, or, as it is more commonly called, Pott's fracture, with a spiral or torsion fracture of the tibia. The patient in an athletic mood arranged to jump over a flower-bed. He slipped, twisting his foot very painfully, as he approached it, and apparently leaping off the normal leg landed on the damaged one which he felt break with his weight. It seems pretty clear that the spiral fracture of the lower end of the fibula was broken by the excessive abduction of the foot, while the tibia yielded to the torsion to which it was exposed when he landed on the foot already over-abducted because of the fracture of the fibula.

As an interval of several weeks had elapsed since the receipt of the injury before he came under my care, and as there was still much thickening of the soft parts, it was quite impossible to restore the fragments to their normal relationship to one another. Fig. 2 shows the best we could do in the circumstances. I have no doubt that a primary operation would have resulted in the perfect restoration of the skeleton to its original form and function, whereas we were only able to make a very painful and useless limb fairly efficient. The combination of the two fractures seemed sufficiently uncommon in my experience to make it worth while putting the condition on record.

The operative treatment of the various fractures which result from excessive abduction or excessive adduction of the foot is very simple. Those resulting from excessive abduction present three degrees of severity: 1. In the first the fibula is broken spirally by the pressure exerted upon the anterior portion of the facet on the fibula by the astragalus. This fracture varies in position. It may either pass through the inferior interosseous ligament, when there may be no displacement of fragments, or it may occur above this ligament, when the displacement may be considerable. 2. In the second, in addition to the fracture of the fibula, the inner malleolus is fractured transversely. 3. In the third that portion of the tibia which is united to the fibula by the inferior interosseous ligament is broken off and is displaced with the lower fragment of the fibula, to which it remains attached.

The treatment of these several fractures, should the displacement be not capable of complete replacement without operation, is the same. It consists in exposing the fibular fracture and in bringing the fragments of this bone into accurate apposition. When this is done the surgeon can be quite satisfied that the fragments formed by the inner malleolus and by the outer and back part of the tibia are in accurate apposition. A steel plate with three or four screws readily retains the fibular fragments in accurate apposition and ensures the restoration of the joint to its normal form and function.

Excessive adduction of the ankle-joint produces fractures of two degrees of severity: 1. In the first the inner malleolus and a portion of the tibia are broken off by a vertical fracture which traverses the tibia at the junction with the inner malleolus. This results in the upward displacement of the inner fragment which cannot be fixed accurately in its normal position except by operation. 2. In the second degree there is as well a transverse fracture of the fibula at the lower limit of the tibio-fibular joint, this bone being broken transversely over the lower margin of the tibia. This fracture is rarely a sharp one, the bone being usually somewhat scrunched.

The operative treatment of these fractures is to expose the inner fragment of the tibia, and having replaced it accurately in position to retain it immoveably by means of a vertically placed steel plate and by three screws. If the fibula is broken as well the surgeon may rest assured that its fragments are in the best possible position.

The spiral fracture of the shaft of the tibia results from a rotation outwards of the trunk upon the abducted foot. The forces exerting rotation on the tibia are the interval between the centre of the tibio-fibular joint and the end of the great toe below, and above the interval between the head of the femur on the same side and the outer limit of the pelvis on the other. This rotating force results in a spiral fracture of the shaft of the tibia with a backward and outward displacement of the lower fragment; in more severe cases there is associated subsequently a spiral fracture of the shaft of the fibula very much higher than the tibial fracture. Besides the force which produces a torsion fracture of these bones there is superadded the weight of the body. These two forces assist in producing the overlapping of the fragments which exists to a varying degree in these torsion fractures.

In the case illustrated here the upper fibular fracture was absent owing to the fibula having been already broken by the excessive abduction of the ankle.

The treatment of these torsion fractures of the tibia is always the same—namely, the free exposure of the tibial fragments, their accurate replacement in their normal relationship, and their secure fixation by means of one or more steel plates and screws. When this has been effected the fibular fragments have usually been restored to their normal relationship, but if this has not been done accurately the interval between the fibular fracture and the ankle-joint is so great as to make any displacement of the fibular fragments immaterial.

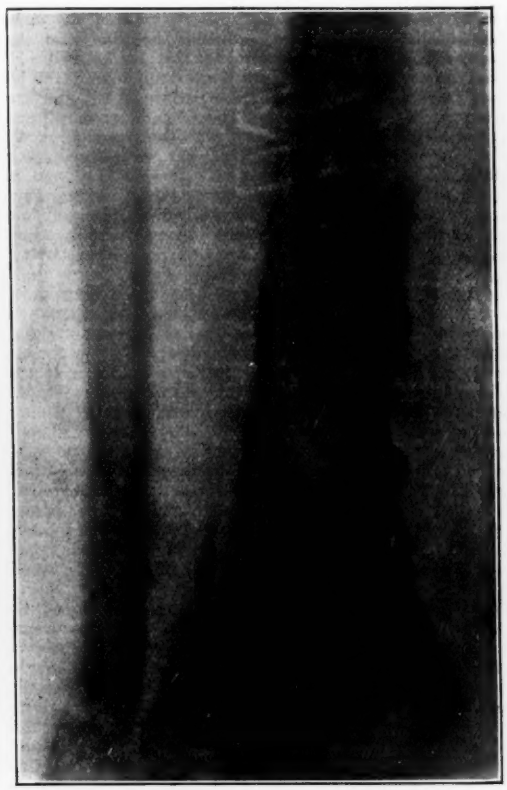
The results of the operative treatment of these several fractures of the tibia and fibula are excellent, providing the surgeon does his work properly, since the skeleton is restored to its normal form and function. Besides this, the operative procedures are simple and are devoid of risk. On the other hand, the results of the treatment of displaced fragments by manipulation and splints are hopelessly bad.

Cavendish-square, W.

FIG. 1.—*Before Operation.*

Fracture of ankle-joint (Pott's fracture) and spiral fracture of fibula.

FIG. 2.—*After Operation.*



Fragments in normal replacement by steel plate and screws.

Mr. John Mulvany, L.R.C.P. Edin., J.P., has been elected to the aldermanic bench by the Portsmouth town council.

PATENT URACHUS AND ENCYSTED URINARY CALCULI.

BY CAMPBELL DYKES, M.B. LOND., M.R.C.S. ENG., L.R.C.P. LOND.,
CAPTAIN, I.M.S.

THIS case, which both in its clinical and pathological bearings I believe to be of some interest, came under observation on Jan. 27th, 1908, at Rae Bareli, Oudh.

The patient was a Hindu male, aged about 30 years, apparently healthy apart from his urinary complaint, which dated back some five years or more. Owing to pressure of work I had not seen him till he was on the operating table prepared for litholapaxy. The urine, I was informed, was acid and free from albumin. Several small concretions lay free on the base of the bladder, but on commencing to crush the first the beak of the lithotrite impinged upon what appeared to be a much larger calculus occupying a position at the apex of the half-distended bladder. After the first stone had been crushed the projecting portion of this larger calculus was easily seized between the blades of the lithotrite, but was found to be fixed to the bladder wall.

To crush this calculus *in situ* appeared dangerous, if not impossible, so lateral lithotomy was performed and the forefinger passed into the bladder. The calculus was now found just within reach of the finger. With the forefinger on the tip of the calculus and the other hand on the abdominal wall it was estimated to be of considerable size, and its upper portion seemed very close under the examining hand beneath the abdominal wall in the middle line. It was evidently an "hour-glass" stone, the deeper half being considerably larger than the projecting portion felt by the finger. The projecting portion being steadied in the grasp of lithotomy forceps the perforated end of a long probe was insinuated alongside the neck and gradually manœuvred round the whole circumference, loosening the retaining tissues till by gentle traction and rotation of the forceps an "hour-glass" calculus was safely delivered. A second calculus immediately dropped from the same pocket into the bladder cavity. It, together with the three small concretions, the presence of which on the bladder floor had already been detected, was now removed, and the débris of the small stone, first crushed, washed out. In case other concretions might still be lying in the pocket its recesses were explored by a probe. Nothing further was found, but the probe passed up in the middle line, easily palpable through the abdominal wall to a point two inches below the umbilicus. At the upper end the pocket seemed to be contracted to a mere sinus. Convalescence was rapid and uncomplicated.

The "hour-glass" calculus weighed over 1½ ounces. Its neck was of about the thickness of a cedar pencil but somewhat flattened. The deeper lobe was larger than the projecting head, which was capped by a pea-sized, rough, dark-coloured concretion easily broken off when dry from the head proper. This terminal concretion resembled exactly in colour and approximately in size the four small concretions which had been found free in the bladder, differing only in being rough and not polished or faceted by attrition. This resemblance strongly suggested that these four also owned the same source from the head of the "hour-glass" calculus. Each weighed about 10 or 12 grains. The second encysted calculus showed a large oval facet corresponding to a like facet on the base of the "hour-glass" calculus. Its longer axis had lain at right angles to that of the diverticulum in which it lay. It weighed just over half an ounce.

Neither in recorded cases nor in museum specimens have I come across any instance in which an encysted calculus has occupied the apex of the bladder. All the records I have found refer to basal or lateral sacculi, such as are commonly associated with enlarged prostate and chronic cystitis. This is so, for instance, in all the cases of encysted calculus included in the late Sir Henry Thompson's series of over 800 cases, the specimens of which are now in the Museum of the Royal College of Surgeons of England. From the position and relations of the diverticulum this case appears to be an example of persistent patency of the lower end of the urachus with calculous formation following, presumably on the accidental lodgement of a small concretion in it.

As showing the free communication which may exist between the bladder and a patent urachus, Marshall's case[1] may be quoted, in which the aperture admitted three fingers, and Garrigues',[2] in which there was an upward prolongation of the bladder in front of the peritoneum and transversalis fascia without any constriction at all. Both these were discovered accidentally in the course of a laparotomy. Binnie[3] found in 12 adult bodies out of 16 examined a slight diverticulum from 1 to 2 centimetres deep at the fundus of the bladder, and Vaughan[4] quotes Wutz as saying that in most bodies the urachus is permeable for a short distance upwards—that is, that most persons have the condition of "blind internal fistula," but so long as the valve-like fold of mucous membrane (valve of Wutz) which guards the opening remains intact nothing can pass from the bladder into the urachus. Mériel[5] also says that the urachus is undoubtedly permeable "after some sort" after birth, and Arbuthnot Lane,[6] in describing the pathological appearances of a case in which a traumatic urethral stricture had existed, records that "at the upper angle of the bladder and apparently at the point of attachment of the urachus was a diverticulum of mucous membrane which had no covering of the muscle wall; it was as large as a small marble with a small orifice of communication with the bladder cavity. *This resembles exactly several others I have seen in this position.*"

While urachal cysts are much commoner in the female than in the male, a patent condition of the urachus leading to urinary umbilical fistula is much commoner in the male (14 out of 16 cases—Marshall[1]) owing to the greater liability to obstruction of the urethral outflow from phimosis, stricture, stone, enlarged prostate and bladder tumour, and consequent forcing open of the valve of Wutz (Vaughan[4] and Weiser[7]). Nevertheless, as Mériel points out,[5] patency of the urachus may exist without obstruction, just as obstruction frequently exists without urachal fistula.

Several cases are recorded of the association of urinary calculus with an external urachal fistula. In a case of T. Paget, shown by Bowman in 1850,[8] a uric acid calculus which had formed round a coiled hair was extracted digitally through a patent urachus. In Case 36 of Vaughan's series[4] an umbilical fistula coexisted with a stone in the bladder and was closed after removal of the stone by suprapubic lithotomy. And in one of Weiser's cases[7] a calculus weighing 70 grains was removed from a suppurating urachal cyst which was discharging through the umbilicus. I have not, however, found any case showing the exact combination which existed in the present one—namely, urinary calculi occupying the lower end of a blind internal urachal fistula, though the possibility of such an occurrence seems clearly enough indicated by the pathology.

As regards the treatment adopted, it must be admitted that there was considerable risk that the condition found might have proved impossible to deal with from the perineum, although encysted calculi have not infrequently been extracted by this route—e.g., Captain Hugo's case of stone secondary to a gunshot wound.[9] Also a condition mechanically somewhat similar—namely, a calculus projecting from a ureteral orifice—has been successfully dealt with through the female urethra.[10] The alternative suprapubic operation, however attractive on account of the good access it gives to the interior of the bladder and the ease with which a stone can be extracted, is, under circumstances in which ideal conditions as regards after-care cannot be secured, a much more serious proceeding and apt to be followed, in my experience, by a tedious and very uncomfortable convalescence. I feel sure that my preference for the perineal operation wherever practicable is shared by many surgeons, at all events in India.

Nor is it at all certain that a suprapubic incision would have rendered possible a radical cure by dissection of the diverticulum from the peritoneum, with closure of the bladder, as was done in Marshall's case. For in several instances it has proved impossible to dissect away urachal cysts from their posterior attachments or (a condition pathologically strictly comparable) possible with only great difficulty and danger (Doran[11]). Failing some future septic condition of the bladder, there seems no particular reason to anticipate that the existence of this diverticulum will cause serious trouble, though recurrence of stone is a possibility to be reckoned with.

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Hampstead, N.W.

AN UNUSUAL CASE OF OBSTRUCTION OF THE SMALL INTESTINE CAUSED BY A MECKEL'S DIVERTICULUM.

BY G. H. MAKINS, F.R.C.S. ENG.,
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THE patient, a healthy youth, aged 20 years, who had never previously suffered from any intestinal trouble and whose bowels acted regularly daily, became unwell on Nov. 12th, 1909. He suffered from some abdominal pain and general malaise, but the bowels acted normally that morning. On the 14th the pain became worse and he vomited on several occasions; the bowels did not act and the patient took to his bed. During the next seven days no further action of the bowels took place although purgatives and enemata were administered. Flatus was, however, passed on many occasions. The patient vomited, seven or eight times daily, a dark-brown matter, ill-smelling but not fæcal in odour. He slept little and was in some pain. On the ninth day from the commencement of the illness Dr. W. Thornely saw him in consultation and the patient was sent to St. Thomas's Hospital.

On admission on Nov. 21st the patient was pale, with some anxiety of countenance. The tongue was moist, vomiting occurred occasionally, and after the administration of an enema some flatus was passed. The temperature was subnormal; the pulse was 72, small. The abdomen moved little and was much distended, the distension being central and resembling in character that seen with a collection of pus in the pelvis. The flanks were flat, but there was no asymmetry. General tympanitic resonance was present, and on palpation there was marked tenderness beneath the lower segment of the left rectus, where also the patient said the chief pain was located. On rectal examination the bowel was found to be empty, and in Douglas's pouch a tender elastic swelling could be felt. There was no abnormal scarring or depression of the umbilicus.

Position of curved fish bone and relation to perforation are shown by the dotted line.

A left para-median sub-umbilical incision was chosen as corresponding to the position of the pain and tenderness. A small amount of free fluid escaped on opening the peritoneal cavity, and highly distended coils of small intestine presented. A finger passed into the pelvis established the fact that no collection of pus existed, and a short search allowed the detection of collapsed coils of small intestine. The latter were traced to the right side of the pelvic brim, and when some of the distended coils had been allowed to escape a Meckel's diverticulum was exposed. The constriction was not very tight, and a finger was inserted beneath the diverticulum, which gave way from its point of attachment to about the centre of the right half of the brim of the pelvis. The adherent area was on the right side of the diverticulum about three-quarters of an inch from its tip. No intestinal contents escaped. The base of the diverticulum was clamped, ligatured, and sunk by a row of sutures passed in the transverse axis of the bowel. The loaded extruded intestine was emptied by an enterotomy and replaced, and finally the abdomen was closed. The patient made a rapid recovery, only interrupted by some suppuration in the abdominal wound, no doubt due to fouling by the intestinal contents removed.

The diverticulum was situated about two feet from the termination of the ileum and was two and a half inches in length. It contained liquid fæces, and while being examined the end of the rib of a whiting protruded from the perforation in its wall. The lining mucous membrane was inflamed throughout, but there was no ulceration except at the point at which the end of the fish-bone had impinged and caused the perforation.

The case is of some interest both from the points of view of diagnosis and pathology. The history provided none of the special features of obstruction from a Meckel's diverticulum, except the obviously mild nature of the constriction, since flatus was passed throughout. On the other hand, the history of the initial pain and malaise, continuing for two days, followed by the development of vomiting and constipation, suggested an attack of perforative appendicitis, while this theory was supported by the character of the abdominal distension, the tenderness beneath the left rectus, and the fulness in Douglas's pouch, all of which suggested that the obstruction was symptomatic and depended on the presence of pus in the pelvis. The pathological interest lies in the fact that the condition forms another link in the chain of resemblance between the possible accidents to which both Meckel's diverticulum and the vermiform appendix are alike liable.

Charles-street, W.

FOREIGN UNIVERSITY INTELLIGENCE.—*Baltimore (Johns Hopkins University):* Dr. E. A. Erlanger has been appointed Adjunct Professor of Physiology.—*Berlin:* Dr. R. Olshausen is about to retire from his Professorship of Midwifery and Gynæcology.—*Bonn:* Dr. Paul Prym has been recognised as *privat-docent* of Pathological Anatomy and General Pathology.—*Breslau:* Dr. Robert Scheller has been granted the title of Professor.—*Cagliari:* Dr. Giulio Tarozzi has been appointed Extraordinary Professor of Pathological Anatomy, and Dr. Roberto Binaghi Extraordinary Professor of External Pathology.—*Catania:* Dr. Filippo Arturo Foderà of Cagliari has been appointed Professor of Materia Medica and Experimental Pharmacology.—*Kharkoff:* Dr. N. A. Voliashko has been appointed Extraordinary Professor of Pharmacognosis and Pharmacy.—*Marburg:* Professor Schmidtmann has been appointed Curator of the University.—*Munich:* Dr. L. Lindemann, *privat-docent* of Medicine, has been granted the title of Extraordinary Professor; Dr. Rudolf Schneider has been recognised as *privat-docent* of Ophthalmology.—*Naples:* Dr. Carlo Gualdi has been recognised as *privat-docent* of Internal Pathology.—*New Orleans (Tulane University):* Dr. Henry Bayon has been appointed Adjunct Professor of Anatomy.—*Padua:* Dr. Luigi Sabbatani of Parma has been appointed Professor of Materia Medica and Experimental Pharmacology.—*Pavia:* Dr. Carlo Bellinzona has been recognised as *privat-docent* of Ophthalmology.—*Zürich:* Dr. Hans von Wyss has been recognised as *privat-docent* of Physical and Chemical Diagnosis of Medical Diseases.

A CASE OF SUDDEN DEAFNESS OCCURRING DURING ECLAMPSIA.

BY MACLEOD YEARSLEY, F.R.C.S. ENG.,
SENIOR SURGEON TO THE ROYAL EAR HOSPITAL; MEDICAL INSPECTOR OF LONDON COUNTY COUNCIL DEAF SCHOOLS, ETC.

THE following case is, I think, well worth placing on record. I have so far been unable to find one similar in the published literature, either otological or obstetric, whilst inquiries amongst obstetricians of my acquaintance have been equally unsuccessful, save that Dr. Eardley L. Holland informs me that he has met with one instance in the German literature of eclampsia. The history of the case is, briefly, as follows.

The patient, aged 40 years, was seen by me on Oct. 26th, 1909, at the request of Dr. J. B. Wallace of Clapham. She had been deaf in the right ear since October, 1907, and she stated that the deafness had come on suddenly during eclampsia. She did not think that there had been any change in the hearing since its onset. Tinnitus had been present from the beginning, at first of a roaring character, "like thunder," now more of a "continuous whizzing." There had been occasional general dizziness, which was now much less, but no specific vertigo could be elicited. There was no paracusis Willisii, hearing being better in a quiet room. On examination both tympanic membranes were of similar aspect, their texture and lustre being normal, and the light reflexes somewhat small. Both mallei moved normally to the Siegle speculum. The nasal septum was slightly deflected to the right, but caused no obstruction; the post-nasal space was small, and there was slight chronic pharyngitis. Functional tests gave the following results: Weber's test lateralised to the left. Acoumeter, spoken and whispered voice heard on the left the length of the room (over 15 feet) and the whole series of tuning forks, from 3C 16 to C^4 were heard well by air conduction. On the right side spoken voice was perceived at 31 inches, acoumeter and whisper *nil*. By air 3C 16 and C^4 were lost, the perception for the forks between these limits being greatly diminished, but the absolute length of time in seconds for which they were heard could not be accurately gauged. Rinné's reaction to C (128) was positive on both sides. Bone conduction to the C fork was, after repeated testing, apparently – 17 seconds on the right and – 8 seconds on the left. The Edelmann Galton-pfeife was heard up to 40,000 double vibrations on the left, up to 15,000 (?) on the right. The tests for each ear were done with the opposite ear tightly plugged with cotton-wool, but it is possible that the voice and whistle results and those for some of the higher forks were due to hearing through the skull by the opposite ear, as I have had no opportunity of checking their accuracy by testing with Bárány's noise-producing apparatus. I have already pointed out this possible source of error in a published note.[1] There was no spontaneous nystagmus and the caloric test showed no impairment of the vestibular apparatus.

Since examining this case I have to thank Dr. Wallace and Dr. A. E. Giles for the following notes as to the original attack of eclampsia.

Dr. Wallace was called to the patient on Oct. 19th, 1907, at 4 A.M., and found her insensible. "She was removed to a nursing home and was seen by Dr. Pelham Webb. Tried chloroform, &c. Dr. Giles saw her about 9 P.M., and transfused 8 pints into her median basilic vein. All the 20th she remained insensible, being unconscious for over 48 hours and having frequent convulsions. Between 3–4 A.M. on the 21st I delivered her of a seven months' stillborn male child; on my return after breakfast she had regained consciousness. She had no more fits after this, but hung between life and death for days. The urine at first was almost solid and gradually improved. Her heart was dilated, she was badly cyanosed, and oxygen and strychnine were freely used. She gradually improved and left the home on Nov. 15th; albumin remained in the urine for some months after. It was her third pregnancy; I confined her twice before (girls both times), but nothing noteworthy occurred. She could hear before the illness."

Dr. Giles gave me the following note: "There is not much to say clinically, but briefly the matter was as follows. I saw her at 9 P.M. on Oct. 19th, 1907, when she had had a good many fits stretching over some hours and was comatose; I at once transfused her to the extent of 8 pints of saline; labour had not advanced far, so I decided not to interfere; she had no more fits and the following morning, Sunday, she was conscious but dazed; confinement took place naturally on the Monday morning. The urine was absolutely loaded with albumin, so that we came to the conclusion that she probably had a definite nephritis; her mind remained rather dull for several weeks after the confinement."

Without entering into the etiology and pathology of eclampsia (an admirable review of which by Dr. Eardley Holland has appeared recently[2]) two features may be pointed out: (1) that the symptoms are those common to many toxæmias, and that eclampsia is, broadly speaking, an auto-intoxication by the toxic products of protein disintegration; (2) that eclamptic blood is characterised, among other things, by an increased coagulability, and that Dienst considers that the increase of fibrinogen in the blood of eclamptic patients is most important, and accountable for nearly all the thrombotic and other changes which occur in the body. Deafness occurring during eclampsia may, therefore, be due to toxæmia, to effusion or hæmorrhage into the cochlea, or to thrombosis or embolism. In the first case—deafness due to toxæmia—it is unlikely that the condition would be confined to one ear, since the deafness met with in other toxæmias is invariably bilateral. I am inclined to regard the present case as one of blocking of the cochlear branch of the auditory artery, since hæmorrhage or effusion into the cochlea would have been accompanied by vestibular disturbances, which appear to have been absent and which, if overlooked in the gravity of the eclamptic symptoms, would have left permanent traces recognisable on testing the vestibular apparatus.

The condition was unlike any I have ever seen due to nephritis, and it is more likely that the deafness was dependent for its cause on the general conditions found in eclampsia than on kidney lesion. Renal changes occur in 99 per cent. of cases of eclampsia (Schmorl in 73 necropsies only met with one instance in which the kidneys were healthy), and, in the review already alluded to, Dr. Eardley Holland says that the severe clinical symptoms of eclampsia cannot be dependent upon the renal changes.

It is somewhat surprising that no other cases of deafness arising during eclampsia have been recorded. Eclampsia is, however, so fatal a condition that it is possible that instances have passed undetected both clinically and on the post-mortem table.

Harley-street, W.

[1] Journal of Laryngology, vol. xxiv., p. 251.

A NOTE ON COCAINE POISONING.

BY ALEXANDER G. GIBSON, D.M. OXON., M.R.C.P. LOND.

THE easily accessible accounts of the acute toxic effects of cocaine mention among the prominent symptoms those of brain excitability, mental instability, tonic and clonic convulsions. Convulsions seem not to be one of the usual effects of cocaine poisoning in man, and the description of tonic and clonic applied to them hardly agrees with my own observations in a recent case.

At 2 P.M I was suddenly called to see a married lady, aged 40 years, suffering with the most violent spasms. The history was as follows. She had been in her usual health, but in consequence of some throat irritation she had been occasionally painting her fauces and tonsils with a 2 per cent. solution of cocaine hydrochloride. Before luncheon she had painted her throat because of a "choky feeling." Immediately after luncheon, though not feeling ill, she again had the same sensation and retired to paint her throat a second time. No sooner had she done this than the sensation became worse, and she felt as if she could not breathe. She rang for her maid who found her in violent spasms. On my arrival, perhaps five minutes from the onset of the attack, I found her half sitting, half lying in a chair, clutching at her sides with both hands, making grimaces such as often accompany intense muscular effort, quite oblivious to her surroundings, and occasionally uttering piercing cries. Many

[2] Journal of Obstetrics and Gynæcology of the British Empire, vol. xvi.

of the movements were of the voluntary type, for on seizing her wrist in order to restrain her she made partial efforts to get it free.

A more careful examination was made after she had been placed on the floor; her face was intensely red, but was not moist, her eyes were more prominent than normal, her pupils were medium sized and equal, and her pulse was strong, full, regular, and slower than one would have expected. Her breathing was not obstructed except by the spasms. For a few moments she would remain somewhat quiet, then she would clench her teeth, strike out with her arms, and her whole body would become stiff with tonic muscular rigidity. During the spasms she was totally unconscious, but in the more quiet intervals she appeared to know what was going on and once inquired why she was lying on the floor. The movements were so violent and it was so difficult to prevent her from injury that chloroform was deemed advisable. A dose administered on a handkerchief quite insufficient to induce anæsthesia succeeded in allaying the convulsion, and it was then possible to place her on her bed, after which no further spasms occurred.

The whole attack did not last more than 15 or perhaps 20 minutes. The return to her normal state was extremely rapid and in some 20 minutes after being put to bed she was able to get up and relate to me her symptoms. She remembered nothing distinctly after she rang the bell for her maid until she found herself in bed. She had no recollection of my entry into the room, and the only feature that seems to have impressed itself on her memory was that she felt "full of fight." She was able to attend to her social duties in the course of the afternoon and felt no ill-effects until the next day when she lacked some of her usual energy.

The convulsions most nearly resembled those seen in hysteria, but they were more violent; they lacked entirely that avoidance of self-injury which is so conspicuous in many forms of hysteria; during their course the patient was completely unconscious; and, lastly, the patient is not a hysterical subject and has had no similar seizures before. The occurrence of the convulsions in relation to the use of cocaine as a throat application makes it most likely that they were due to that drug, especially when it is remembered that they occurred in a non-hysterical subject and, the drug having been withheld, have not been followed by any further tendency to spasm. An examination of the bottle showed that a deposit had settled to the bottom mixed with which was a fungoid growth, and it is natural to suppose that some of the solid drug or some decomposition product of it had been applied on one or both occasions of painting the throat preceding the attack.

Oxford.

THE INFLUENCE OF NARCOTICS ON PHAGOCYTOSIS.

BY LEETHEM REYNOLDS, B.A., M.B., B.C. CANTAB.,
CAPTAIN, I.M.S.; MEDICAL OFFICER, LAWRENCE MILITARY SCHOOL, SANAWAR, PUNJAB.

IN the practice of both medicine and surgery narcotics play an important part. One of the first principles taught to the medical student is the necessity of putting an injured part to rest. Simple appliances and remedies will often produce the desired result, but there are many cases in which rest, in the true sense of the term, can only be obtained by means of narcotics. A patient is suffering, we will say, from great pain, restlessness, and inability to sleep after a severe operation. A dose of morphia is given, all restlessness disappears, and the patient sleeps. Relief from pain and distress in such cases is generally considered sufficient to justify the means and no thought is taken of any ulterior effect of the drug.

A great deal of work has been done of recent years on the subject of immunity, and thanks to Metchnikoff, Ehrlich, Wright, and many others, we now appreciate the great importance of the natural resistance of the body to disease. Before deciding that narcotics may be used with advantage it would be well to consider what effect, if any, these drugs have on the phagocytes. In this paper the effect of morphia only will be discussed.

In 1898 Cantacuzène published[1] the results of some interesting experiments on the effect of opium on phagocytosis. A guinea-pig immunised against cholera was given tincture of opium subcutaneously, followed by a sublethal dose of cholera vibrios introduced into the peritoneal cavity. He found that in spite of vascular dilatation diapedesis did not take place. The vibrios retained their form and motility and multiplied rapidly. As the effect of the opium passed off diapedesis began, and in a short time large numbers of leucocytes appeared on the scene, which rapidly enveloped the vibrios. The animal invariably died in spite of the fact that no free vibrios were present in the exudate. On examining the exudate it was found that some of the leucocytes, showing marked signs of degeneration, were literally stuffed with vibrios. Cantacuzène explained this in the following way. Some of the leucocytes, enfeebled by the opium, although capable of enveloping the vibrios, are killed by the toxins produced by the latter, and serve as a suitable medium in which the vibrios multiply. He states that this never takes place unless the animal be under the influence of opium. In another series of experiments tincture of opium was given, followed by a mixture of immune serum and cholera vibrios in such proportion that the control survived. He found that Pfeiffer's reaction took place but phagocytosis was retarded and incomplete; some of the vibrios escaped, multiplied rapidly, and caused the death of the animal.

Metchnikoff was the first to call attention to the phagocytic power of the leucocytes and fixed connective tissue cells, and to the important part this phenomenon plays in saving the tissues from invasion by pathogenic organisms. In 1894 Pfeiffer described the phenomenon named after him, and maintained that the destruction of bacteria in the living body was brought about by substances contained in the blood serum and was not due to any influence exerted by the leucocytes. In reply to Pfeiffer the above-mentioned experiments were advanced by Cantacuzène in support of Metchnikoff's theory, and apparently no attempt has been made to apply the knowledge gained to the practice of medicine.

I have undertaken the following experiments with the object of throwing further light on this important question.

Experiment 1.—An emulsion was made from a 24 hours growth of staphylococcus aureus on agar slope in 1 per cent. sodium citrate. A dog was given half a grain of morphia subcutaneously. One volume of dog's blood and one volume of citrate emulsion were mixed together and incubated at 37° for 15 minutes. The number of bacteria was counted in 25 polymorph leucocytes: before morphia, 123; half hour after, 64; one and a half hours after, 29. After the morphia injection the dog became slightly drowsy.

Experiment 2.—A guinea-pig was given half a grain of morphia subcutaneously. One hour later two cubic centimetres of broth were injected into the peritoneal cavity. Three hours after giving morphia one cubic centimetre of an emulsion of staphylococcus aureus in normal saline, killed by heat, was injected into the peritoneal cavity. Fluid was withdrawn from the peritoneal cavity half an hour after giving the emulsion. The bacteria in 25 polymorph cells were counted: morphia guinea-pig, 89; control, 168.

Experiment repeated. 60 cells were counted: morphia guinea-pig, 59; control, 162.

Fluid was much more easily withdrawn from the control than from the morphia guinea-pig, and the exudate from the former was much richer in leucocytes. After 24 hours the exudate was again examined. In the control the cocci in the leucocytes were for the most part swollen up and stained badly, while those in the white cells of the morphia guinea-pig showed little change. After giving morphia the guinea-pig showed slight signs of narcosis.

Experiment 3.—A guinea-pig was given one-quarter grain of morphia hypodermically. Three-quarters of an hour later two cubic centimetres of broth were injected into the peritoneal cavity. Peritoneal fluid was removed after two hours and mixed with 2 per cent. sodium citrate, and the leucocytes were washed twice in normal saline. One volume of washed cells, one volume of own serum, and one volume of emulsion of staphylococcus aureus were mixed together and incubated at 37° C. for 15 minutes. Morphia guinea-pig, 2 in 30 cells; control, 21 in 30 cells.

Experiments were also made to see if morphia inhibited the growth of staphylococcus aureus. It was found that a plentiful growth took place in 10 cubic centimetres of broth containing 1-10th of a grain of morphia.

From the above experiments it would seem that morphia exerts a marked influence on the leucocytes. Not only does it check diapedesis, but phagocytosis is diminished in a marked degree. The growth of bacteria, on the other hand, is not appreciably affected.

Let us consider for a moment what bearing this has on the practice of medicine and surgery. It is probable that in most surgical operations a certain number of pathogenic

[1] Annales de l'Institut Pasteur, 1898.

organisms gain entrance to the wound, however carefully asepsis be observed. The further history of the case turns on this point. Will the phagocytes be able to destroy these bacteria before the latter have multiplied sufficiently to gain the upper hand? If morphia temporarily paralyses the activity of the phagocytes, if this drug be given time is lost during which the bacteria multiply. When the narcosis passes off the phagocytes may be unable to destroy the bacteria on account of their number and the paralysing effect of the toxins produced by them; in fact, by giving morphia the chances of sepsis have been increased.

Again, consider the case of an acute infection such as lobar pneumonia. From the onset we know that a certain number of pathogenic bacteria are present at the site of inflammation and that the progress of the disease will depend largely on the extent to which these bacteria multiply. At the beginning of the case, when there is little secretion in the bronchial tubes and the cough dry and extremely painful, it is a common practice to give morphia, put the patient to sleep, and "reserve strength for the time when he must remain awake and cough or die of suffocation." Here, again, the phagocytes are placed *hors de combat* at a time when they should be particularly active. The bacteria steal a march when the phagocytes are asleep; they multiply and the phagocytes recover from their lethargy to find their task infinitely greater than before.

Lastly, let us take a case of early appendicitis where the symptoms are obscure and palliative treatment is adopted to await further developments. Text-books generally say in such a case, "A little morphia may be given to check peristalsis and quiet the patient, but not much, since it tends to mask the symptoms." Not only does it mask the symptoms, but it muzzles the phagocytes. When the latter recover their vitality, even though they be able to overcome the bacteria, the reaction is much greater than it would have been had the phagocytes been free to act from the first; more fluid is poured into the tissues of the inflamed appendix and the danger of strangulation and subsequent sloughing is so much the greater.

I have much pleasure in thanking Colonel D. Semple, R.A.M.C., director of the Central Research Institute, Kasauli, for the valuable help he has given me in placing material at my disposal.

N.B.—In THE LANCET arriving by last mail I have read with much interest a paper on the Relation of Alcohol to Immunity by Dr. P. R. Parkinson.[2]

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

PATHOLOGICAL SECTION.

Serum Diagnosis of Syphilis.—Grafting Fœtal Cartilage.

A MEETING of this section was held on Feb. 15th, Dr. F. W. MOTT, the President, being in the chair.

Dr. H. R. DEAN read a paper on Some Factors in the Serum Diagnosis of Syphilis. During the examination of a series of 368 cases the opportunity was taken of making a number of comparative observations with a view of determining the importance of the various factors concerned in the reaction. In 158 cases alcoholic extracts of normal guinea-pigs' heart were compared with watery extracts obtained from syphilitic liver. The results appeared to show that the extract from syphilitic material was a more delicate reagent. In the majority of cases, however, a good extract of normal organ gave quite reliable results. In the standardisation of extract it was necessary to accurately determine (1) the dose of extract which by itself absorbed the usual dose of complement; (2) the dose of extract which in the presence of normal serum absorbed complement; and (3) the dose of serum which in the presence of syphilitic serum absorbed complement. A good extract was one which with syphilitic serum completely absorbed complement in a dose which was much smaller than the dose which absorbed complement in the presence of normal serum. The capacity possessed by many extracts in a marked degree of absorbing complement, in the presence of normal serum, was of great importance, and led to error unless the extract was carefully standardised. In using the original Wassermann method it was advisable to test the strength of the hæmolytic system immediately before carrying out the main test. In this way an indication was obtained of the complement content of the guinea-pig's serum. In employing the test two extracts should be used. The normal amboceptor present in human serum was subject to marked variation in amount. In the Wassermann test, in which a hæmolytic serum derived from the rabbit was always added, the question of excess of hæmolytic amboceptor was the only one which arose. Several of the sera examined gave marked positive reactions and were nevertheless found to contain very large amounts of normal amboceptor. In the case of one positive serum 0·1 cubic centimetre was found to contain ten times the minimal lytic dose. The normal amboceptor was removed from a series of sera by saturation with sheep's corpuscles. After the removal of the amboceptor the sera gave only a slightly more marked reaction. The number of cases in which the normal hæmolytic amboceptor was absent was small, but in many cases it was only present in small amount. Bauer's modification relied entirely on the presence of the normal amboceptor. There was a danger that the serum investigated might contain just sufficient amboceptor to produce hæmolysis in the control tube, containing serum alone, but might be unable to produce hæmolysis in the tube which contained serum + extract and thus a positive result might be simulated. It must not be forgotten that extract and normal serum possessed considerable power of absorbing complement. A control of normal serum and extract was not satisfactory, for if the control serum was rich in amboceptor and the serum to be examined poor in amboceptor the experiment was misleading. The subsequent addition of a further amount of normal serum in cases where the amboceptor was deficient was not free from objection, since complement might be fixed by extract and the double quantity of normal serum. In Stern's modification the fresh human serum was employed and the complement of the guinea-pig was not used. The larger percentage of positive results obtained by Stern's method were to be attributed to the fact that unheated sera were known to react more powerfully or to the well-known variations in the complement content of human serum. There was much evidence that the reaction with unheated sera, although more readily obtained, tended to be non-specific. A series of 87 cases had been examined by Stern's method and by Wassermann's method. The sera were also titrated to determine the complement content. 23 cases were positive by Stern's method and 14 were positive by Wassermann's method. Of the 9 cases which were only positive by Stern's method 4 were shown to be deficient in complement. The entire object of the experiment was to test the deviation of complement, and it was essential that each tube should receive an equal dose of complement. It was possible when the complement content of the serum was small for hæmolysis to occur in the control tube but not in the tube which contained the serum + extract. A positive result was thus simulated. Hecht depended entirely on the normal human amboceptor and the human complement. The objections which applied to the methods of Bauer and Stern applied with double force to that of Hecht. The best method was that in which the conditions of the experiment, and especially the dose of complement, were constant in each tube. Although the modifications mentioned gave in practice good results the original method was more reliable and the liability to error was smaller.

Mr. F. G. SHATTOCK, Mr. L. S. DUDGEON, and Dr. C. G. SELIGMANN communicated an interim report upon their work of attempting to produce Cartilaginous or Osseous Tumours, the whole of the expenses of which had been defrayed by the Imperial Cancer Research. The attempt to raise a chondroma by the grafting of fœtal cartilage had often been made since Cohnheim enunciated his well-known theory of tumour-origin. It was clear that the simple tumour transference of embryonic or of growing cartilage from one animal to another of the same, and *a fortiori* of a different, species was fruitless. The authors had formulated a working hypothesis before commencing investigations, which was: that the different tissues of the body tended *per se* to grow without limit, and that the growth of any one tissue in

[2] THE LANCET, Nov. 27th, 1909, p. 1580.

particular was restrained by substances produced by all the rest; the hypothetical substances might be named Restraining bodies—Corpora cohibentia. They were not lysins, for the indefinite growth of a given tissue (e.g., cartilage) was not prevented by the lytic destruction of a surplus formation of it. Bashford, Murray, and Haaland's memorable experiment, which showed that an extract of mouse skin inhibited the growth of a subsequently made graft of mouse epithelioma, might be explained by the sum of the bodies which restrain the unlimited growth of skin having accumulated and being loosely fixed in the skin itself, and, as Bashford and Murray had also shown, blood had the same power, but in less marked degree. The work of the authors consisted in grafting the living bones of fœtal rabbits beneath the skin of other rabbits, not once but at regular intervals, and in considerable quantity, with the object of exhausting the "restraining bodies." They had selected for the animals to be grafted young rabbits and does which were kept regularly pregnant with the object of aiding the projected result. Six or eight fœtal long bones were inserted at each sitting. Of the two does used, one had up to the present received subcutaneous insertions of fœtal bones on five occasions, and had been pregnant seven times; the other had had fœtal bones inserted on seven occasions, and had been pregnant eight times. The authors, as they proceeded, had made the important modification of using the progeny of each doe to furnish the grafts inserted beneath the skin of the mother herself. The epiphyseal ends of the grafted bones underwent a certain amount of enlargement, but as yet no tumour had arisen. In the case of one of the does thyroid extract was now being administered. The authors proposed to test the possibility of the grafting having increased the output of restraining bodies by injecting the blood of these animals into others, with the object of producing anti-antibodies which might allow of the growth of fœtal bones grafted into the second series of rabbits so prepared.

CLINICAL SECTION.

Exhibition of Cases.—Aneurysm of the Descending Thoracic Aorta.

A MEETING of this section was held on Feb. 11th, Mr. A. PEARCE GOULD being in the chair.

Dr. STCLAIR THOMSON showed four cases of Epithelioma of the Larynx after Operation. These four cases were interesting from several points of view. All of them showed the safety of the operation of laryngo-fissure. One of them had remained without recurrence for nearly six years. In one case both vocal cords were completely removed, and yet the patient had a loud, strong, though harsh voice, and was free from recurrence two years and four months after operation. This case was also noteworthy because the whole operation was done under local anæsthesia and because part of the thyroid cartilage was excised at the same time. The third case showed a good voice one year after operation. In the fourth case laryngo-fissure had to be followed by complete excision of the larynx. The result was particularly interesting, as the patient was enabled to speak and to carry on much of his respiration through his nose and mouth by means of a von Bruns tracheotomy cannula. This patient was seen in February, 1909, reporting that his voice had not been strong for a year. The cords moved, but not freely, being impeded by an infiltration into the right vocal cord, of which the anterior third was ulcerated and the posterior two-thirds were white and warty. Laryngo-fissure under chloroform was performed on Feb. 25th. By May last the patient had a rough, strong voice, but by the end of that month thickening appeared over the anterior end of the right ventricular band, and stenosis with stridor slowly set in. The larynx was completely removed on Dec. 6th. The extremity of the severed trachea was attached to the front of the neck and the opening into the larynx was closed with catgut and the muscles sewn together over this. It was intended to cut off all communication between the mouth and the lungs; but these stitches broke down, leaving a good-sized opening into the pharynx and necessitating careful plugging and feeding with a nasal stomach-tube. The result was much more satisfactory than if the stitches in the pharynx had all held, for as the wound steadily closed by granulation the opportunity was taken of keeping open a track by means of an inverted rubber tracheotomy-tube. Into this track later the lobster-tail part of a von Bruns artificial larynx was fitted. Through this, by closing up the orifice in the neck, the patient when at rest was able to carry on respiration comfortably through his nose. The instrument also permitted of his talking freely in a strong whisper.

Cases were also shown by Dr. H. MORLEY FLETCHER, Dr. FREDERICK LANGMEAD, Mr. ALBERT CARLESS, Mr. EDRED M. CORNER, Dr. E. ROCK CARLING, Mr. ARTHUR E. J. BARKER, and Mr. W. DOUGLAS HARMER.

Dr. W. ESSEX WYNTER read a paper on a case of Aneurysm of the Descending Thoracic Aorta associated with Dilatation of the Arch. The patient, a male aged 58 years, had enjoyed excellent health till January, 1906, when he commenced to suffer from dull aching pain in the left side of the chest, back, and axilla. When under observation from Feb. 21st to March 7th, 1907, the heart's apex beat was in the anterior axillary line, fifth space, dulness extending from this point to the right edge of the sternum. The first sound was normal, but the second was accentuated over the aortic cartilage. The heart sounds could be heard, though indistinctly, below the left scapula. There was tracheal tugging. Pain was so severe at night that the patient could not remain in bed. A skiagram revealed a shadow indicating considerable enlargement of the heart, and another above this projecting to the left of the vertebral column, indicating aneurysmal dilatation of the arch and descending portion of the thoracic aorta. He was treated with potassium iodide, but was unwilling to remain more than a fortnight, and left in much the same state. The condition, on the whole, grew worse, and when seen again the skiagram showed considerable enlargement, both of heart and aneurysm, the shadows occupying quite a third of the thorax.

MEDICAL SOCIETY OF LONDON.

The Cerebellum and its Affections.

A MEETING of this society was held on Feb. 21st, Dr. SAMUEL WEST being in the chair.

Dr. J. S. RISIEN RUSSELL delivered the second of the 1910 Lettsomian lectures on the Cerebellum and its Affections. He said that although the same morbid conditions may be met with in the cerebellum that affect the cerebrum, vascular lesions are uncommon and tumours are most often responsible for disordered function of the organ. The same general symptoms occur as in the case of intracranial tumours in other situations. Optic neuritis is liable to set in early, to be severe, and to lead to rapid loss of sight and consecutive atrophy. His own experience had been in accord with that of those who are of opinion that when neuritis begins in one eye before the other, or is more intense in the one eye, this usually corresponds with the side of the cerebellum in which the tumour is situated. Le lie Paton had arrived at the conclusion that optic neuritis has not this localising value in intracranial tumour, but in the discussion that followed the reading of his paper Sir Victor Horsley expressed himself as diametrically opposed to this conclusion, and Sir William Gowers also considered it at variance with the weight of evidence. In discussing the disorders of equilibration that may result from tumours of the cerebellum, reference was made to the remarkable provision which exists in the central nervous system for compensating defects of the cerebellum, and which explains why in some cases of tumour in the organ so little evidence of disordered function may be forthcoming. The observations of Grainger Stewart and Gordon Holmes are regarded as of special value as indicating the symptoms and physical signs to be expected from cerebellar lesions in man, as so many of them are based on cases in which operations for the removal of tumours from the cerebellum had been performed, which made the results comparable to those of ablation experiments in the laboratory. The sense of rotation of external objects experienced by the patient, irrespective of whether the tumour was intra- or extra-cerebellar, they found to be from the side of the tumour to the opposite side as the object appeared to pass in front of the individual. The sense of rotation of the patient was in this same direction when the tumour was intra-medullary, but in the opposite direction when it was extra-medullary. The attitude described as the result of

unilateral ablation of the cerebellum, in which the head inclines to the homo-lateral side while the chin points to the contra-lateral, is met with in some cases, but, as has been pointed out by Batten, is not a reliable sign, as in some cases the head inclines to the contra-lateral instead of the homo-lateral side. The irresistible feeling which compels the patient to lie on the normal side and which is independent of any sense of vertigo was referred to, as was the inclination which there is for him to deviate from a straight line towards the side of the tumour in walking, and the erroneous impression to which over-correction of this tendency with staggering to the opposite side may lead. The homo-lateral relations of the cerebellum to the spinal cord, emphasised in the first lecture, were further brought out by the defects to be ascribed to tumours of one lateral lobe of the organ. These include inability to stand as well on the homo-lateral leg alone as on the contra-lateral one, incoördination in the movements of the homo-lateral limbs, including the phenomenon described by Babinski as "diadococinesia," in which attempts at rapid movements of pronation and supination of the forearm result in awkward, slow, and imperfect movements of the kind. Paresis with atonia of the muscles of the homo-lateral limbs may often be determined, and the hypnotic condition of the muscles is responsible for a phenomenon on which Stewart and Holmes laid special emphasis; when resistance that has previously been exerted against a movement such as flexion of the forearm is suddenly removed the movement is continued to an extent that does not occur in a normal limb, and none of the normal recoil is seen. Although exaggeration of the knee-jerk in greater degree on the homo-lateral side is one of the results of unilateral ablation of the cerebellum which he (the speaker) determined, no such constancy is to be expected in cases of tumour in man, for the knee-jerks are most variable under these circumstances; indeed, the way in which they may vary in the same patient within short periods of time is rather a characteristic of tumours of the cerebellum. The abdominal and plantar reflexes are not altered in uncomplicated cases of cerebellar tumour, so that absence of the former or the extensor type of the latter should suggest involvement of the pyramidal system in the pons or elsewhere. Defective power of movement of the eyes to the homo-lateral side, with in some cases even a slight tendency to conjugate deviation to the contra-lateral side, are phenomena to be looked for, as is paresis of the external rectus on the homo-lateral side, and lateral nystagmus in which the jerks are coarse and slow when the eyes are directed to the side of the lesion, and small in range and rapid when they are turned in the opposite direction. Apart from the optic nerves, the sixth is the only one that is liable to suffer in intra-cerebellar growths, whereas in extra-cerebellar tumours other nerves may be involved, notably the facial and auditory. Other phenomena which serve to distinguish intra- from extra-cerebellar growths were discussed, and in pointing out that defects which are to be ascribed to destruction of cerebellar tissue are not to be expected in extra-medullary tumours, emphasis was laid on the absence of homo lateral paresis in these cases, in which, nevertheless, contra-lateral paresis of the spastic type, with possibly the extensor plantar reflex, may result from pressure of the tumour on the pons. Tumours of the middle lobe of the cerebellum occasion symptoms that are similar to those which result when the lateral lobe is affected but are bilateral. The patient may tend to fall to either side, and there may be a special tendency to fall backwards or forwards. The proximity of the cerebellum to the pons, and the important connexions which exist between these two parts of the central nervous system, make it important to be able to distinguish the effects produced by tumours of the pons from those which result from tumours of the cerebellum. The outstanding feature is spastic paralysis, with its usual accompaniment, which is commonly bilateral; but crossed paralysis, in which there is paralysis of one or more of the cranial nerves on one side and of the limbs on the other, may occur instead. Any of the nerves which take their origin from the pons and medulla may be affected, and not only those usually involved by tumour of the cerebellum, in addition to which their affection is commonly bilateral. Optic neuritis is much less common than is the case with cerebellar tumours, and may only appear in the final stages of the illness. It is generally recognised that when the source of infection is the middle ear the most common seats of intracranial suppuration are the temporo-sphenoidal lobe of the cerebrum and one lateral lobe of the cerebellum. The clinical pictures produced may be very definite and easy to distinguish, but in a large proportion of the cases it is otherwise, as but few, if any, localising signs can be determined. A case of abscess of the right lateral lobe of the cerebellum recorded by Acland and Ballance was referred to in which the patient lay curled up on his left side with all his limbs flexed His eyes were deviated to the left and presented lateral nystagmus. The right arm was markedly weak, while both lower limbs were slightly so. The right knee-jerk was brisk, and, of course, greater than the left. A case reported by Wilfred Trotter was also quoted, in which, with a left cerebellar abscess, conjugate movement of the eyes to the left was weak, nystagmus was most marked when the patient looked to the left, the knee- and ankle-jerks were exaggerated on the left side, the left arm and leg were weak and ataxic, while the arm revealed marked continuation of flexion at the elbow without recoil when resistance that had been exerted was removed. Such complete pictures are rare, but enough may commonly be determined on which to base a correct diagnosis. Nystagmus is one of the most constant signs, and although actual conjugate deviation of the eyes is rare, weakness of the conjugate movement to the side of the abscess can often be determined, with or without an added weakness of the external rectus of the homo-lateral eye. Paresis of the homo-lateral limbs, especially of the arm, is becoming more and more recognised as part of the clinical picture that may result from abscess of the cerebellum, and the same may be said of exaggeration of the homo-lateral knee-jerk. Aphasia supplies one of the most certain signs of abscess of the temporo-sphenoidal lobe, but is usually only helpful when the left side of the brain is affected and not always then. Logan Turner regards an inability to name objects as a sign of great diagnostic value, the absence of which would favour the probability that the abscess is in the cerebellum. When hemiplegia exists it is on the contra-lateral side, commonly includes the face, is of the spastic type, and is accompanied by the extensor type of plantar reflex, none of which features belong to the hemiparesis of cerebellar origin. As the hemiplegia is sometimes produced by pressure on the crus cerebri, third nerve paralysis on the side homo-lateral to the abscess may occur, while irrespective of these other phenomena a dilated stabile pupil on the same side as the abscess is comparatively common.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.

Gonorrhœa and the Gonorrhœal Infection.—Exhibition of Specimens.

A MEETING of this society was held on Feb. 4th, Dr. J. B. HELLIER, the President, being in the chair.

Mr. H. LITTLEWOOD opened a discussion on Gonorrhœa and the Gonorrhœal Infection. He discussed the subject under the headings of gonorrhœa in the male and female and the extension of the disease (1) by epithelial continuity, (2) by the lymphatics, and (3) by the blood stream. In his opinion a large number of cases recovered by rest in bed and the use of purgatives and alkaline diuretics without local injections. Abortive treatment in the male if carried out should be done by the surgeon and not left to the patient. There were, however, a good many unsatisfactory semi-chronic and chronic cases which were very difficult to treat successfully by the usual methods—e.g., gleet and gonorrhœal rheumatism. He thought that the articular complications were not regarded seriously enough in the early stage and that ankylosis, which so often resulted, could be prevented by aspiration, early movements, &c. In the chronic cases better results seemed to be obtained by vaccine treatment than by any other means, and he thought the time was rapidly approaching when the vaccine treatment would supersede all other methods in the treatment of both the acute and chronic conditions.

Dr. A. G BARRS said that in his experience fatal complications of gonorrhœa were extremely rare. He had found, however, that certain obscure cases of pyrexia had been due to unrecognised gonorrhœa, principally in men. He commented very strongly on the necessity for local, especially

surgical, treatment of gonorrhœa of the joints and gonorrhœal arthritis; if aspiration were not successful, then incision and drainage should be attempted; if active surgical interference was not adopted it was important to secure a good position of the limb, a detail which was not infrequently neglected in treatment in the medical ward.

Mr. J. F. DOBSON said that in cases of chronic urethritis he had not found the urethroscope of much value. He thought that instillations into the posterior urethra were on the whole fairly efficient, but must be carried out daily and by the surgeon himself. The surgical treatment of arthritis should consist in open incision, washing out the joint, and immediate closure. Those cases in which considerable effusion of fluid was present were most likely to benefit by this form of active interference.

Dr. MYER COPLANS said that in a recent investigation of 30,000 patients discharged from the Navy with reference to simple continued fever he had been struck with the large proportion of men who had had gonorrhœa and had thought that some causal relation possibly existed. He said that in gleet other organisms were present so that no two cases of gleet were alike. The best results were obtained by isolating the organisms in a particular case and treating with the appropriate vaccines prepared from them. In the Navy the results had so far been excellent. In affected joints the organisms were in all cases gonococci and might be treated with a vaccine obtained from an acute case. In acute gonorrhœa variable results had been obtained by vaccine treatment, and some authorities had now given up this form of treatment in the early acute stage. In practice the taking of opsonic indices was not necessary. It was useless to administer a vaccine or serum in any case in which a collection of pus was present, because pent-up toxin would be liberated and more harm than good would be done.

Mr. H. COLLINSON said that in all cases injections should be made by the surgeon, as when left to the patient they were useless because they reached only as far as the compressor urethræ, and consequently did not come in contact with the affected part.

Dr. E. O. CROFT referred to the importance of diagnosis of gonorrhœa in the female and of the facts of bacteriological pathology which had proved valuable as a guidance to treatment both in the initial stages of the disease and in the operative treatment of gonococcal pelvic suppuration. He said that the detection of gonococci in the discharge was only occasionally useful. In recent acute cases when the gonococci were more easily detected the clinical signs were usually fairly obvious, but in the more chronic conditions where differential diagnosis was important the organisms were difficult to find owing to the depth of their lurking places, and diagnosis then had to be largely based on certain clinical signs together with a careful history. He was not in favour of curetting and vigorous antisepsis in the early stages, and had obtained better results by less violent means provided the disease was recognised early and the patient treated in bed. In later stages curetting was occasionally useful. Of local applications the silver preparations were useful, but he had not noted that the organic silver preparations were more effectual than the inorganic silver nitrate. Formalin in suitable strengths had given good results. Radical operation in pelvic suppuration when due to gonorrhœal infection had usually been most successful when delayed until the acute symptoms had subsided. The pus was then either sterile or attenuated and non-virulent, especially when encapsuled in tubal or tubo-ovarian sacs. This localisation and automatic sterilisation were more frequent in gonorrhœal cases than in suppuration due to the streptococcus and other organisms. The latter more frequently infected the veins and connective tissue, as well as the tubes and peritoneum, and might require earlier surgical treatment.

Dr. A. MACKENZIE said that he had had a large experience of cases in the military hospitals, and he found that the acute cases invariably got well on a milk diet and rest in bed without any other form of treatment. In private practice this good result was not obtainable, because patients would not take the necessary rest in bed.

The PRESIDENT showed: (1) An Oviduct thickened by chronic inflammation, probably gonococcal, the swelling being chiefly in the cellular tissue of the tube; and (2) an Ovarian Abscess of the size of a pigeon's egg, due to gonococcal infection of a Graafian follicle.

Mr. LITTLEWOOD showed Specimens of Two Stomachs, three-quarters of each of which had been removed for malignant disease; the patients had made good recoveries. He also showed a Perforated Appendix removed from a woman at the seventh month of pregnancy; she made a good recovery without aborting.

Other cases and specimens were also shown by Dr. O. C. GRUNER, Dr. E. F. TREVELYAN, Dr. T. WARDROP GRIFFITH, Mr. MICHAEL A. TEALE, and Mr. J. STEWART.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.—A meeting of this society was held on Feb. 11th, Dr. H. Cooper Pattin, the President, being in the chair.—Dr. R. A. Lyster, county medical officer of health and school medical officer of Hampshire, read a paper on Problems connected with the Medical Treatment of School Children. Referring to the vague and unsatisfactory wording of the latter portion of Section 13 of the Education (Administrative Provisions) Act, 1907, Dr. Lyster said that it might well be doubted whether the Act really contemplated that money which had been raised for purposes of education could be spent upon individual medical treatment or whether the words "attending to the health and physical condition of the children" legally permitted such money to be used for hospitals, for philanthropy, or for carrying out duties that had been already placed upon Poor-law authorities. He pointed out that the fact that certain education committees had already undertaken duties connected with the spread of ringworm, vermin, and certain infectious diseases did not legalise further action in any way, and that these steps were obviously undertaken as a means of protection of other children rather than as a specific treatment for the individual. Furthermore, when it was suggested that a share of the responsibility for treatment was cast upon education authorities through such enactments as those dealing with the provision of meals, with the blind and deaf, and with epileptics and those who were defective, it must not be forgotten that with respect to all these the parent was liable for that part of the expenditure incurred which was personal and not educational. The Local Education Authorities Medical Treatment Act, 1909, had not materially altered the position, for in order satisfactorily to work this Act it would be necessary for an education authority to establish machinery for the investigation of the means possessed by all parents for whose children treatment was to be provided; to establish other machinery for recovering the cost of treatment; and there would also have to be compiled elaborate scales by means of which it would be possible to determine whether the authority was satisfied that the parent was unable to pay the required amount. The defects for which at the present time treatment was to be provided included sores of all kinds (including skin diseases), verminous conditions, ringworm, and discharging ears. These might be dealt with by the local sanitary authorities as a fairly reasonable extension of their present duties. In addition, there were to be treated conditions of the tonsils, adenoids, and defective teeth, and these might be taken over at once by the Poor-law authorities, who had power to make special arrangements for operative treatment. Lastly, there was the question of eyesight. The testing of sight was not really a part of treatment at all, but was purely a part of medical inspection. It should be carried out easily and expeditiously by arranging for the examination of accumulated cases at special temporary centres, such as schools, on Saturday mornings. Prescriptions could then be issued and the parents could obtain spectacles at contract prices. Such a scheme had been working successfully in Hampshire for some time past. After discussing at some length the various arguments which have from time to time been adduced in favour of and against the medical treatment of school children by the Poor-law authorities and by public health committees respectively, Dr. Lyster dealt with the question of school clinics, and one objection to this method of treatment which he raised was the fact that it dealt merely with a special small period of life. He considered that there was no valid reason why the ages 5 to 14 should be selected for the special provision of treatment, while the younger children and older persons were left entirely unprovided for. On the other hand, he considered that there would not be much to be said against school clinics if they could be managed under the ideal conditions of excluding those children whose parents were in a position to pay for treatment and of adequately paying the medical staff who carried

out the work.—The discussion which followed revealed considerable differences of opinion among the members of the society, although to a certain extent they were upon points of detail.—Mr. F. E. Fremantle considered that they must go in for a system which should include the unification of the public medical services, and that they would only increase the confusion at present existing if they tried to prop up voluntary hospitals with public money. Until such reorganisation was assured he was averse to forcing the pace with regard to the medical treatment of school children. He urged the appointment by the Local Government Board of a departmental committee to consider the details of such reorganisation.—Dr. H. Meredith Richards strongly deprecated these proposals and considered that they should do all they could under existing conditions. The suggestion of a departmental committee was only another way of hanging the subject up. He did not think that there would be much opposition by general practitioners to school clinics provided they limited their sphere of action to ringworm, eye diseases, and dental work. He was very favourably impressed with the usefulness of the school nurse.—Dr. E. H. T. Nash approved of treatment being carried out by the general practitioner provided he was properly paid for it. He protested against a common practice of children's aid societies paying the railway fares of children to enable them to attend as out-patients at distant hospitals.—Dr. D. A. Garruthers considered that it would be extremely difficult to formulate a general scheme of treatment in rural districts, but he thought that the number of parents who were unable to pay for treatment had been underestimated. In certain districts in England he found that 57 per cent. of the children who required treatment were treated by their parents voluntarily, while in Germany where free treatment was obtainable the percentage ranged from 60 per cent. to a maximum of 80 per cent. He thought that their greatest difficulty in securing treatment lay in the fact that medical inspection itself was not compulsory.—Dr. A. H. Bygott considered that the education authorities should pay a rent for the hospitals in which the school children were treated and should adequately remunerate the medical staff for doing the necessary work.—Dr. Lockhart E. W. Stephens was of opinion that as medical inspection of school children was an honest attempt to deal with the question of physical deterioration, so the State should provide the medical treatment found by the inspections to be needed. There should be no claim on the parents, but the children should be educated in such a manner that they would grow up into healthy men and women.—Dr. Sidney Davies agreed that medical treatment provided by the State was the complement of State medical inspection.—Dr. C. Sanders thought that there would be great difficulties and many objections to any proposal that a scale of incomes should be drawn up in order to decide as to who should be entitled to medical treatment by the State.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Feb 4th, Dr. Neville T. Wood, the President, being in the chair.—Mr. W. McAdam Eccles showed a specimen of the rare tumour known as a "Retro-peritoneal Myxo-fibro-lipoma" which he had removed from a woman aged 39 years. The tumour weighed 19 pounds and 11 ounces after removal. The patient made an uninterrupted recovery.—Mr. Alban Doran mentioned the difficulties and dangers met with in these cases by himself and others—especially from the vessels coming from the aorta and the veins and occasionally from adherence of the capsule to the intestine, when resection might be imperative.—Mr. Eccles also showed a Gall-stone from the Small Intestine.—Mr. T. B. Layton showed a Tumour of the Submaxillary Gland (5″ × 4″ × 4″). The patient had noticed some enlargement in this region all her life, but it had been enlarging during the last two years. On microscopic examination it was seen to have the same structure as the mixed parotid tumours. He also showed an "embryoma" of the testis removed from a man aged 28 years. It measured 6″ × 5″ × 4″. Microscopic slides were shown demonstrating a great variety of tissues, some epithelial, others mesoblastic.—Mr. J. McDonagh showed sections (microscopical) from nodules in the skin from two cases clinically resembling one another, one a case of a Late Syphilide, the other the case of Mycosis Fungoides shown by Dr. P. S. Abraham at the clinical meeting on Jan. 7th last. In both lesions the swelling consisted of a plasmoma, but the transformations of the plasma cells were quite distinct. Both cases gave a positive Wassermann's reaction, but Mr. McDonagh considered them to be histologically distinct.—Mr. N. Bishop Harman showed a mounted specimen of an Eye removed on account of injury. He said that though it was their duty to try to save an injured eye, if it was seriously injured and irritation continued for two or three weeks it was better to excise it. He also showed a Hair from an "Albino" Negro. The patient was a full-blooded negro, 20 years old, in excellent condition. He said that his father and mother and brothers and sisters were quite black.—Dr. Cairns Forsyth showed Six Gall-Bladders removed by operation: (1) gall-bladder showing calculous cholecystitis with carcinoma of the neck of the gall-bladder; (2) gall-bladder showing hour-glass contraction with carcinoma arising at stricture and invading liver; (3) gall-bladder showing chronic calculous cholecystitis; (4) gall-bladder showing hydrops due to impaction of stones in the cystic duct; and (5 and 6) gall-bladders excised for acute cholecystitis.—Mr. L. A. Bidwell showed a specimen of Carcinoma of the Rectum to prove that it was necessary to remove the peri-rectal fat in order to clear away the glands. The sigmoid in this case had been brought down and complete union with skin at the anus had taken place and both sphincters left intact. He also showed a large number of Gall-stones removed from a man, aged 43 years. About 300 were removed from the gall-bladder and 50 from the common duct.—Dr. J. M. Bernstein showed the following specimens: 1. Suprarenals from a case of Addison's Disease. 2. Œsophageal Cancer Perforating a Bronchus. 3. Puerperal Endo-parametritis, Septic Phlebitis, Phlegmasia Alba Dolens, and Pyæmia. 4. Ruptured Tubal Pregnancy showing Fœtus. 5. Fœtal Monstrosity. (Dr. Batteson's specimen.) 6. Phlegmonous Œsophagitis with Rupture into the Thorax occurring after a hearty Sunday dinner. The wall of the œsophagus showed the same condition as found in phlegmonous gastritis.

SHEFFIELD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Feb. 10th, Dr. George Wilkinson, the President, being in the chair.—Dr. Sinclair White read a paper on Cancer of the Large Intestine based on 114 cases on which he had operated. He said that the sclerosing type of cancer was the one most often met with in the colon. It grew slowly, was late in infecting the glands, and when freely excised was followed by recurrence in a smaller proportion of cases than almost any other form of cancer. It was important to remember that nearly a third of the cases occurred in patients under the age of 40 years. The symptoms were usually indefinite until the growth had produced narrowing of the bowel. Then the co-existence of colicky pains and exaggerated peristalsis, with ever-increasing constipation, led to a diagnosis. The advent of obstruction should be the signal for colostomy, and advantage should be taken of the parietal wound to examine the growth and the abdominal viscera intra-peritoneally. Colectomy should not be undertaken in the presence of obstruction, because it was under any circumstances a dangerous operation and should be reserved for patients who were neither old nor feeble. There was a growing feeling in favour of the operation in three steps, even where obstruction was not imminent. By adopting the triple method the risk was reduced from upwards of 40 per cent. to less than one half that amount.—Dr. White also showed a woman, aged 72 years, on whom he had performed Rhinoplasty. The entire cartilaginous framework of the nose had been destroyed by a rodent ulcer of seven years' duration. After freely excising the ulcer, a suitably shaped frontal flap which included the periosteum and had its pedicle over the left inner canthus was raised and twisted into position. The large gap on the forehead was filled by a graft of the entire thickness of the skin taken from the chest. The wounds healed kindly and the æsthetic effect of the operation was remarkably good.—Professor J. M. Beattie and Dr. A. E. Barnes showed preparations demonstrating the Phenomena of Hæmolysis and its Applications in the Syphilis Serum Reaction of Wassermann, Neisser, and Brücke. Professor Beattie remarked that the reaction was certainly not specific but had been found on the continent to have great empirical value. It was found in scarlet fever, leprosy, trypanosomiasis, and some cases of tuberculosis.—Dr. J. Moir Mathieson showed a series of pathological specimens, among which were (1) the Brain of an Imbecile showing a Cystic Condition of the Cerebrum; (2) a Brain

showing Left Hemiatrophy; (3) a Brain, the Left Hemisphere of which showed Arrested Development of the Fissure of Rolando; (4) a Brain, the Left Hemisphere of which showed Incomplete Porencephaly in Paretic Dementia; (5) Gall-stones Imbedded in the Peritoneum; and (6) Perforation of the Aorta and Œsophagus by a Needle.—Mr. A. C. Turner showed a young man with Alopecia Areata. The chief feature of the case was a red, depressed, glazed bald patch on the front of the scalp with great atrophy of the scalp tissues.

HARVEIAN SOCIETY.—A meeting of this society was held on Feb. 17th, Dr. M. Handfield-Jones, the President, being in the chair.—Mr. J. Gay French read a paper on "Some Points in Middle-ear Suppuration, its Sequelæ and Treatment." In dealing with the etiology he emphasised the severity of cases following scarlet fever, and also drew attention to oral sepsis as a factor in its causation. He then exhibited temporal bones showing perforations into the middle fossa and lateral sinus. In a brief account of the bacteriology he drew attention to a group of saprophytic organisms which under conditions of oral sepsis become pathogenic and cause when they attack the middle ear a very foul discharge unaccompanied by the formation of any protecting granulations. In dealing with the examination and treatment he entered a strong protest against the use of the syringe and the insufflation of powders, and directed attention to the importance of treating diseased conditions in the nasal, naso-pharyngeal, and oral cavities, the maintenance of free drainage, and the application of antiseptics preferably in the form of drops. Where possible he considered the best plan of treatment to be the passage of hot air medicated by antiseptics through the Eustachian tube into the middle ear, and showed an apparatus for the purpose. He used air at a temperature of 140° F., repeating the treatment for five minutes daily, and reported 8 cases in which the treatment had cured 5 and greatly improved the remainder, the average duration of treatment being about a fortnight. After a brief reference to vaccine treatment, he gave the indications for mastoid operation, and then spoke of some of the sequelæ of middle-ear suppuration, mentioning the good results he had obtained by fibrolysin in some cases of deafness and tinnitus.—In the discussion which followed, Dr. William Hill thought that Mr. Gay French went too far in his condemnation of the syringe. He failed to see the *rationale* of the hot-air treatment and recommended the use of protargol drops.—Dr. H. W. Fitzgerald Powell also thought syringing safe, provided proper methods were used, and emphasised the importance of treating nasal and post-nasal conditions.—Mr. W. Stuart-Low agreed with Mr. Gay French in condemning the syringe, and gave his experience of treatment with steam charged with kelvelin.—Dr. Andrew Wylie also condemned syringing, and said that he had used hot air, but for treatment of deafness, not suppuration, and gave statistics of 84 cases.—Dr. J. Atkinson drew attention to the importance of enlarging small openings in the membrana tympani and using a suction apparatus.—Dr. Dan McKenzie's experience of hot-air treatment had been unfortunate. He believed labyrinthine disease much commoner than supposed, and probably due in some cases to careless syringing.—Mr. E. Laming Evans congratulated the author, and Mr. Gay French replied.

MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.—A meeting of this society was held on Feb. 4th, Professor R. Muir, the President, being in the chair.—Dr. J. Miller read notes of the following cases treated by injections of bacterial vaccines:—(*a*) Tuberculosis of the Urinary System. 1. Male, aged 27 years, with tuberculosis of left kidney and ureter. Treatment by in all ten injections of tuberculin R., along with normal horse serum. Complete recovery. 2. Female, aged 22 years, with tuberculosis of bladder. Treated by five inoculations of T.R. and normal horse serum extending over three months. Marked improvement. (*b*) Tuberculous glands in neck. Two cases, a girl, aged 12 years, and a woman, aged 39 years. The former treated by 11 inoculations of 1-15,000th mg. T.R.; the latter by 12 inoculations of 1-10,000th mg. T.R. In both complete recovery. (*c*) Gonococcus Infections. Four cases: 1. Gonorrhœa in male. Vaccine prepared from patient's gonococci. Complete recovery after three injections. 2. Gonorrhœa in male, treated by mixed vaccine of gonococci and staphylococcus albus obtained from patient. Recovery after four injections. 3. Male with urethritis, arthritis of knees, conjunctivitis, and iritis. Treatment as in Case 2. Recovery after three injections. 4. Female with gonorrhœa (contracted from husband), arthritis, and conjunctivitis. Treated by vaccine prepared from husband's gonococci. Recovery after four inoculations. (*d*) Staphylococcus Infections. Four cases: 1. Man, aged 60 years, with carbuncle on neck, numerous abscesses over trunk and limbs, and cystitis, pyæmia, and severe glycosuria. Treated by vaccine prepared from patient's own staphylococcus pyogenes aureus. 24 inoculations given. Complete recovery. Cases 2, 3, and 4 had local infections more or less severe, with dyspepsia and slight glycosuria. Treated as Case 1 with complete recovery.—Dr. W. R. Jack read notes of four cases of Gonorrhœal Arthritis treated in Glasgow Royal Infirmary by vaccine therapy. 1. Male, aged 25 years, arthritis of both knees; gonorrhœa a year before; gonococci not found, but opsonic index low. Treated by six injections of a polyvalent vaccine at intervals of 4 or 5 days, beginning with about 4,000,000 cocci and increasing by 2,000,000 each time to a maximum dose of 10,000,000. Dismissed well in one month. 2. Male, aged 28 years. Arthritis of knees, shoulders, and wrist; gonorrhœa two years before; no organism found, but index low. Treatment as in Case 1. Dismissed well in six weeks. 3. Male, aged 31 years. Arthritis of knee, shoulder, and thumb; no improvement under salicylates; no history of gonorrhœa and no gonococci found, but index low. Treated as Case 1. Dismissed practically well after 7½ weeks' vaccine treatment. 4. Male, aged 29 years. Arthritis of left knee; gonorrhœa one month before admission; gonococci obtained from fluid in knee-joint and vaccine prepared. Four injections given and patient dismissed well in eight weeks.

CHELSEA CLINICAL SOCIETY.—A meeting of this society was held on Feb. 15th, Mr. Leonard A. Bidwell, the President, being in the chair.—Mr. Harold S. Barwell gave a demonstration of the Method of Direct Examination of the Larynx, Trachea, Bronchi, and Œsophagus with Brüning's Instruments, which depends on the fact that the trachea or œsophagus can be brought into a straight line with the mouth by fully extending the head and making forward traction on the moveable parts about the hyoid bone. After giving a brief history of œsophagoscopy, he showed that in Brüning's instrument the illumination is provided by a lamp fixed in the handle. The handle has two rectangular bends so that the actual grip is parallel to the tube and allows the forward traction to be made easily and steadily. There is a focussing lens, the mirror is adjustable, and can be swung backwards to allow of the introduction of the inner tubes. There is also a slide within the grip by which the lamp and mirror can be pulled away from the tube for nearly four inches to permit the use of intruments, but without interfering with the illumination. The distal end of the tube is cut away obliquely to facilitate introduction, and there is an inner tube which can be passed down, under inspection, by a spring marked to show the distance travelled. For bronchoscopy this inner tube is fenestrated to admit of breathing through one bronchus while the other is being explored, and, possibly, blocked up. The introduction can usually be made under local anæsthesia, but in sensitive or nervous people and children general anæsthesia is preferable. In these cases the left lateral position is the best, but the sitting posture when local anæsthesia is employed. The head is well extended and the instrument passed behind the epiglottis and downwards for half an inch. Forward traction then brings the larynx into view. To examine the œsophagus it is passed down close to the pharyngeal wall. The œsophagus always remains open one or two inches below the end of the tube and opens and closes with respiration to some xtent. There is no resistance till the phrenic opening is reached, and here the instrument, with gentle pressure, will enter the stomach. When in the trachea the scale should be watched and the bifurcation distinctly seen before attempting to enter either bronchus. The primary use of the instrument is, of course, the removal of foreign bodies, but it is also of great value in stricture causing bronchiectasis, stenosis of the trachea, and the removal of tracheal neoplasms. In the case of children, it has revolutionised the treatment of multiple papillomata of the larynx, which had previously been such a difficult problem. In the œsophagus it greatly facilitates the removal of foreign

bodies, the diagnosis of malignant tumours, and the dilatation of impermeable strictures.

EDINBURGH OBSTETRICAL SOCIETY.—A meeting of this society was held on Feb. 11th, Dr. J. Lamond Lackie, Vice-President, being in the chair.—Mr. E. W. Scott Carmichael read a paper on Some Indications for Vaginal Fixation in Uterine Displacement. He said that following the teaching of Martin this operation had been performed on patients at all ages during the child-bearing period. In spite, however, of the results obtained by Martin and Dührssen, and their favourable reports of this operation in relation to childbirth, Mr. Scott Carmichael had not felt justified in performing it under the age of 40 years in his later cases, and in his opinion the true facts as to the cause of difficulty during childbirth after this operation had not been worked out. From the results of 20 cases in which he had operated he believed that the procedure was of undoubted value in cases of retroversion, prolapse, and cystocele, where the patient would not submit to an abdominal operation and where treatment by pessaries had proved inefficacious. In fixed retroversion it was of value where the adnexa were not involved by the inflammatory processes. In cystocele and mild cases of prolapsus uteri the symptoms could be entirely relieved by vagino-fixation. In following out the technique of Martin the uterus should be fixed to the anterior vaginal wall at a point 4·5 centimetres below the fundus, but if the patient had passed the menopause the point of fixation might be made nearer to the fundus. In the above class of cases next to the various methods for shortening the round ligaments vaginal fixation was to be preferred to ventro-fixation or ventro-suspension.—Dr. R. P. Ranken Lyle, Dr. J. Haig Ferguson, Dr. W. Fordyce, and others discussed the paper.—Dr. J. W. Keay read a paper on a Simple Perineal Operation for Relaxed Vaginal Outlet. A commencement was made by raising a flap from the lower end of the vaginal wall; into the right and left corners of the raw area Kocher's forceps were pushed through the fascial covering of the levator ani, and a portion of the muscle was grasped and pulled towards the median line and fixed there by strong catgut. By this means the vaginal outlet was narrowed and lifted up out of the axis in which the intra-abdominal pressure was directed downwards. The base of the flap was stitched to the fascial covering of the rectum, and the apex of the flap was stitched to the external wound, which was closed by a subcuticular stitch. In this way a new fourchette was formed, a strong perineum was obtained, and a vaginal sphincter of voluntary muscle was incorporated in the perineal body. Dr. Keay said that the operation was comparatively simple.—Dr. Lyle, Dr. Lackie, and others discussed the paper.

Reviews and Notices of Books.

Surgery: Its Principles and Practice. By Various Authors. Edited by WILLIAM WILLIAMS KEEN, M.D., LL.D., Emeritus Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia; and JOHN CHALMERS DACOSTA, M.D., Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia. Volume V. With 550 illustrations, 45 of them in colours. London and Philadelphia: W. B. Saunders Co. 1909. Pp. 1274. Price, cloth, 30*s.* net; half morocco, 34*s.* net.

WE welcome the appearance of the last volume of this most excellent System of Surgery, for it completes a work which will for years maintain its place as containing the best general account of surgery in the English language. Nearly 70 writers have contributed toward the making of this great work and of these two died before the appearance of the last volume. When the work was first suggested it was intended that it should have filled some 4000 pages. In carrying out the idea which the editors had in mind they have found it necessary to employ nearly 5500 pages, representing an increase of over 25 per cent. We congratulate all concerned in it on the completion of this great work, but especially are our congratulations due to Professor Knee for the manner in which he has carried out so arduous a task.

The contents of this volume are in no way less interesting than those in any of the preceding volumes. The Surgery of the Vascular System has been furnished by Dr. Rudolf Matas of New Orleans. This commences with an account of the surgery of the pericardium and of the heart. We cordially agree with the writer in his expression of opinion that incision of the pericardium for the purpose of letting out fluid, whether serum or pus, is far safer than aspiration or paracentesis, but Voinitch-Sianojentsky, whose work on the pericardium has been quoted, is one person and not two, as the writer apparently considers him to be. We do not think that the author lays sufficient stress on the compression of the great veins as they enter the heart and of the auricles as the essential part of the evil wrought by excessive intra-pericardial tension. He speaks of the increase in the intra-pericardial pressure interfering with the diastolic dilatation of the auricles and ventricles, but the effect on the auricles is vastly greater than that on the ventricles, because their walls are so much thinner. The fall in the general arterial pressure is entirely due to the interference with the supply of blood to the heart. A good description is given of the chief principles of the treatment of wounds of the heart. In the account of the surgery of the arteries we would especially commend the description of the rules for the tying of wounded arteries. The reasons of the methods employed are clearly given and the exceptions are explained. Arteriorrhaphy is of so modern an origin that it is only natural that we should seek with interest what a writer with so special a knowledge of the surgery of the arteries has said on the matter. The description is very full and is quite up to date. In speaking of the injection of saline solution, the author gives the temperature of the solution in the container as 120° F. We are certainly in favour of employing a higher temperature than that which is usually suggested, but we think that the temperature given here is a little above what is desirable. We are glad to see that the value of blood serum injections is recognised in the treatment of hæmophilia. Dr. Matas a few years ago devised an ingenious operation for the treatment of aneurysm, and this method is usually called after his name, though it has a name of its own, endo-aneurysmorrhaphy. The method is of distinct value and it is becoming more widely used; it is here described clearly. Altogether the surgery of the vascular system has been excellently treated.

The next section deals with the Surgery of the Female Genito-urinary Organs and occupies more than 230 pages. It has been divided between three surgeons; the first part, dealing with the methods of examination and with congenital malformations, has been entrusted to Dr. P. Brooke Bland of Philadelphia. The second portion, by Dr. John M. Fisher of Philadelphia, deals with the surgery of the vulva and the vagina. Both these sections are good, in particular the account of the treatment of ruptured perineum is very clear, and the illustrations representing the several stages of the operation are especially good. Dr. E. E. Montgomery of Philadelphia has written on the surgery of the uterus, broad ligaments, and Fallopian tubes.

Dr. John H. Gibbon of Philadelphia has contributed the chapter on Surgical Technic. In this are described the various methods employed in modern aseptic surgery and the materials used. An interesting contrast is afforded by reprinting an illustration from Sir Watson Cheyne's "Antiseptic Surgery" published in 1882, and one of a modern operating room. The contrast is certainly very great, but it can hardly be said that there is an equally great contrast between the results obtained.

Dr. Warren S. Bickham of New York has described the Ligation of the Arteries in their continuity, and the various illustrations given in order to show the relative position of the arteries to the surrounding structures are numerous and good. Dr. James Peter Warbasse of Brooklyn is responsible for the chapter dealing with the Operations on Bones and Joints. In this are described the various operations for resection of bones and joints, and the osteotomies. The chapter on Amputations is also from the pen of Dr. Bickham, and we need only say that it describes all the usual methods. Dr. John B. Roberts of Philadelphia has written an interesting chapter on Plastic Surgery, illustrated by some striking new pictures. The space at his disposal was hardly sufficient to deal with the subject adequately. Dr. W. L. Estes of South Bethlehem, Pennsylvania, has described the Surgery of Accidents in a short chapter. In addition to the ordinary injuries described those resulting from electricity are also mentioned.

The parathyroid bodies are assuredly very interesting, but we think their importance has been somewhat overestimated in devoting 16 pages to the consideration of the surgery concerning them. We say this without any wish to undervalue Dr. Charles H. Mayo's contribution, which is thorough, interesting, and well written. As is well known, much difference of opinion exists as to the function of the parathyroids; there are those who consider that the parathyroids are merely undeveloped thyroid tissue, and therefore in themselves of little value, and those who look upon them as of very great importance.

Dr. Charles H. Frazier of Philadelphia has written the chapter on the Surgery of the Fifth and Auditory Nerves. Not unreasonably he prefers his own incision route (the auricular temporal) for the removal of the Gasserian ganglion, and we agree that his operation is extremely good. This chapter is well illustrated.

Dr. Hobart Amory Hare writes the article on General Anæsthesia and Anæsthetics. He lays stress on the fact that ether is far safer than chloroform, and therefore maintains that it should be the anæsthetic of choice in ordinary conditions, though he acknowledges that ether has many contra-indications. The chapter contains all the essentials, but we think that it would be well to have placed the methods of resuscitation from an overdose of an anæsthetic in the same volume as that describing the use of the anæsthetics during which these methods might be required.

The late Professor Karl Lennander of Upsala, Sweden, wrote the chapter on Local Anæsthesia only a short time before his death, and the section on Spinal Anæsthesia was completed by his assistant, Dr. Fredrik Zachrissen. Professor Lennander expresses himself as strongly in favour of the mixture of novocaine and adrenalin for local anæsthesia, and he gives instructions as to the technique to be followed for local anæsthesia for different regions of the body and for different operations. The editor adds a small note on Bier's venous anæsthesia, which has yet to prove its value and innocuousness. Dr. Zachrissen's account of spinal anæsthesia is sufficiently detailed to prove useful. He acknowledges that certain difficulties still exist, but he believes that these will be overcome.

Dr. George E. Armstrong of Montreal has contributed the chapter dealing with the Surgery of the Infective Diseases. This is, we believe, somewhat of a novelty in a treatise on surgery, but there are obviously many good reasons for its inclusion. Typhoid fever and pneumonia are those acute "medical" diseases which are most likely to need surgical assistance, and naturally they receive more consideration than those in which the surgical complications are less common.

Dr. Ernest Amory Codman of Boston has written the chapter on the use of the X Rays and Radium in Surgery, which is somewhat original in treatment. It should prove very helpful to the surgeon in teaching him in what direction he may expect aid from skiagrams, and also, and this is equally important, how he may correctly interpret them when they have been obtained. Not the least valuable part of this section deals with the deleterious effects of the X rays. The description of the therapeutics of radium is disappointingly brief.

The Legal Relations of the Surgeon have been described by Mr. Hampton L. Carson, who is a member of the Philadelphia Bar and was formerly Attorney-General of the State of Pennsylvania. Nowadays when actions for malpractice are fairly common, and when surgeons frequently have to give expert evidence in court, it is well that they should devote some attention to the legal aspect of the profession. Although the laws of different countries differ somewhat in regard to the legal aspect of the acts of surgeons, yet the general principles vary but little, and therefore this chapter should prove of value even to surgeons practising in the British Isles.

Dr. William M. Late Coplin of Philadelphia has contributed a valuable little chapter on the Laboratory as an Aid to Surgical Technique and Surgical Diagnosis. It is chiefly concerned with the methods to be observed in obtaining tissues and other material for bacteriological examination, although a short account is given of the methods suitable for preserving specimens. Dr. Albert Gay Ochsner has devoted some 25 pages to the consideration of the Surgical Organisation of a Hospital. It deals with many points, from the number of surgeons required for a hospital to the method of election to the visiting and resident staff; it discusses the plans of a hospital and the methods of diagnosis of patients brought in insensible. Altogether it is likely to prove of service.

The perusal of the concluding volume of this System of Surgery has but served to confirm the favourable opinion which we formed on examination of the earlier volumes. We hope it will meet with the success it deserves, for the editors, contributors, and publishers have done their best.

Diet in Health and Disease. By JULIUS FRIEDENWALD, M.D., Professor of Gastro-enterology in the College of Physicians and Surgeons, Baltimore; and JOHN RUHRÄH, Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Third edition, thoroughly revised and enlarged. London and Philadelphia: W. B. Saunders Company. 1909. Pp. 765. Price 18*s.* net.

THE question of diet practically involves a number of very complex considerations in which chemistry and physiology are commonly mixed up; and the general practitioner is, as a rule, too busy a man to follow the fine arguments contained in the great and many researches which appear from time to time upon the subject. He will be glad therefore to have a book available in which is collected the substance of the modern views held in regard to both the practical and theoretical side of dietetics. The authors' aim has been to produce a practical handbook for everyday use, and they have carried out their purpose with marked success.

We take this to be the meaning of the issue of a third edition of the book within five years of the issue of the first. The chapters present a simple classification of the subject, the chemistry and physiology of digestion being taken first. Then in the succeeding chapter the foods are divided into classes, the individual members being described in regard to their particular values, based first on their chemical composition and then on their digestibility. An excellent chapter on beverages and stimulants follows, in which a useful classification of natural mineral waters appears. Several

waters are here mentioned which will be unknown to readers in Europe, but it is obvious that the United States possess a wealth of mineral water supplies, amongst which occur a number having a chemical composition similar to some of the waters of the well-known spas on the continent. An interesting chapter, and one which is remarkable for its terseness and yet for its wealth of detail, is that which includes the consideration of such important matters as the concentration and preservation of food, artificial food preparations, cooking of foods, food poisoning, auto-intoxications, idiosyncrasies, food adulteration, the detection of preservatives and colouring matters, and so on. Here within the compass of a few pages we have the *pros* and *cons* of difficult questions lucidly placed before us, and the practitioner cannot do better than follow the lead that is given him in each case.

The application of general principles commences in the chapters on diets for special conditions, diet in various diseases, and special methods of feeding, and here again the treatment of the subject is of an eminently practical kind. The book concludes with a number of rapid reference diet-lists, to which is appended a "sample pamphlet of information for distribution among the poor in summer" containing plain, sensible words on a subject of vital importance to every nation.

English Poor-law Policy. By SIDNEY and BEATRICE WEBB. London: Longmans, Green, and Co. 1910. Pp. 379. Price 7*s.* 6*d.* net.

Mr. and Mrs. Sidney Webb have compiled for the benefit of those interested in Poor-law reform, among whom members of the medical profession take a prominent place, a succinct and interesting analysis of the development of the existing Poor-law, because, as they suggest in their preface, "nothing of to-day can be really understood without its history." Five chapters out of eight in their volume are devoted to tracing the history of their subject, from the report of the Royal Commission of 1834 to the present day, and the remaining three chapters are entitled "The Majority Report of the Royal Commission of 1905–1909," "The Minority Report of the Royal Commission of 1905–1909," and "Summary and Conclusion." These last chapters, together with the second of two appendices containing "an extract from the Minority Report for Scotland, giving the reasons in favour of the complete supersession of the Poor-law," supply, no doubt, the original reason for the compilation of the historical chapters which precede them, and are interesting from a different point of view. As advocacy of the scheme of reform propounded in the Minority Report they are excellent, even though they display a tendency (from which the ablest advocates are not always free) to beg the very questions, the answer to which is what the reader wishes to have established by argument and by reference to proven facts. As criticism, a book the cover of which is inscribed "English Poor-law Policy, Webb," must take the same place as would one with the title "The Budget, Lloyd George," or "Tariff Reform, Chamberlain." Its arguments or expressions of opinion must be balanced against those of counsel on the other side; they must not be regarded as a judicial summing-up of the case.

The historical chapters, however, may stand by themselves without impelling us immediately to the consideration of the controversial questions which have been introduced from the desire of the authors to win support for the Minority proposals, and in accordance with a process which may be described in popular terms as "rubbing it in." Not the least interesting pages are those devoted to reviewing the gradual bringing into existence of the Poor-law medical service as we now have it, and the stages of its development through successive statutes, orders, circulars, and instructional communications. This development has been accelerated in recent years, and the general impression which Mr. and Mrs. Webb's summary conveys may be explained by saying that the care of the sick under the Poor-law has come nearer to attaining the objects propounded to those engaged upon it than has been the case in the other matters more exclusively the charge of the Poor-law guardians. If in the future the task assigned to the guardians is entrusted to others, together with a wider field of operations, in the expectation and intention of securing results more satisfactory as regards the social welfare of the nation than those exhibited in the past, the medical profession will play a part of increased importance. We shall, so to speak, "secure a better start" than was permitted under the legislation which resulted from the report of the Commission of 1834. Moreover, the improved position will be due to the efforts of the profession in the development of the science which it practises, in winning public recognition for that science, and in insisting upon the right of the humblest of the poor to participate in its benefits.

In the report of 1834, we read, the revolutionary proposals of the Commissioners with regard to the able-bodied, with which we are not here concerned, were accompanied by no suggestion of any change relating to the care of the sick, who up to that date were dealt with by out-door relief, with or without medical attendance. There were, indeed, suggestions of improved institutional treatment of such defectives as lunatics and blind persons, but there was no reference to anything in the nature of a hospital in recommendations as to workhouses, and none as to indoor medical officers. The Act of Parliament which followed was, not unnaturally, equally silent upon the subject, and the Poor-law Commissioners, who during the period 1834–1847 were the central authority, do not appear to have suggested by their orders that any change of policy seemed to them desirable. The medical profession at this point can hardly be said to have obtained a footing in Poor-law administrative circles. The period which followed, that of 1847–1871, with the Poor-law Board as the central authority, witnessed "a slow and almost un-selfconscious development of a supplementary policy in respect to certain favoured classes of paupers—notably children and sick," although as the central authority as late as 1869 explained, the sick-wards of workhouses, which then at any rate existed in some buildings, "were originally provided for the cases of paupers in the workhouse who might be attacked by illness; and not as State hospitals."

The improvement is traced in the pages before us to a new policy of bringing pressure to bear upon boards of guardians to improve their medical attendance and medicine supplies. The "principle of less eligibility" recommended in the report of 1834 demanded that the conditions of existence afforded by the relief should be less eligible to the applicant than those of the lowest grade of independent labourers. The hardships involved in the enforcement of such a doctrine in the case of the sick are so obvious to us in the twentieth century that there is no need to dwell upon them, and the principle referred to was gradually abandoned under the Poor-law Board with regard to both indoor and outdoor medical relief. The new conditions of medical attendance, we are told, were "the outcome of a long campaign on behalf of the poorer members of the medical profession of which Wakley was the leader in the House of Commons, and THE LANCET the efficient organ." We read also that the insanitary conditions of the workhouses of the period (*circ.* 1847) and their excessive death-rate were "repeatedly brought to notice not only by irresponsible agitators, but also by such competent

statistical and medical critics as McCulloch and Wakley." The more general institutional treatment of the sick had its origin during the same period, and received an impetus in 1864 when "the death of a pauper in Holborn Workhouse and of another in St. Giles's Workhouse, under conditions which seemed to point to inhumanity and neglect, led to an inquiry by three doctors (Anstie, Carr, and Ernest Hart) commissioned by THE LANCET newspaper, the formation of an 'association for improving the condition of the sick poor,' and a deputation to the Poor-law Board." From this period the history of the medical side of the Poor-law system has been one of improvement, both under the Poor-law Board and, since 1871, under the Local Government Board which succeeded the Poor-law Board in the performance of the same duties without any immediate change of function or policy. The tendency of recent innovation is to be gathered from a quotation from the thirty-second annual report of the Local Government Board, 1902–03, recording that "the workhouses of a past and bygone age are no longer refuges for the able-bodied, but are becoming every day more of the nature of State hospitals for the aged sick and infirm. As such they should be furnished with the very best nursing procurable."

We need not say anything as to developments within the scope of modern memory, as our readers are quite familiar with these, but they are adequately brought to the notice of the reader in this volume, and the importance attributed to the Metropolitan Asylums Board and its hospitals by Mr. and Mrs. Sidney Webb is very right and proper. Their book should be read with interest, particularly by those who, from their memory and experience or by the aid of literature at their command, are able to place side by side with the history of the Poor-law the record of outside social developments which have stimulated its evolution, and which are now apparently responsible for a demand for its abolition. It would be interesting to see traced accurately the extent to which Poor-law administration in medical and in general matters has lagged behind or has kept pace with contemporary progress and also how far the constant, if at times slow, advance made has been accelerated by the pressure of medical opinion. That this has been exerted unsparingly both inside and outside official circles will be gathered from Mr. and Mrs. Sidney Webb's book, and we cordially thank them for their recognition and appreciation of medical work (and incidentally of our founder and ourselves) in the field of Poor-law policy.

Atlas der Elektropathologie. By Dr. S. JELLINEK. With 96 plates and 16 figures in the text. Berlin and Vienna: Urban and Schwarzenberg. 1909. Pp. 103. Price 35 marks.

IN this volume the author has successfully undertaken the pictorial representation of the electro-pathological collection in the Museum of Forensic Medicine at Vienna. Not the least admirable feature of the work is the excellence of the illustrations with which the volume is profusely furnished. We understand that this is the result of a four-colour printing process which we may surely hope to see in more general use. The accurate and realistic rendering of the appearance of severe electric burns, scars, blistering of feet, and articles of clothing worn at the time of accident from electric shock is quite remarkable. The author describes his cases according to a definite system. Each one is more or less typical of its class, and after relating the circumstances that led up to the accident he proceeds to enlarge upon it in its clinical, forensic, and technical aspects. Incidentally, he affords convincing proof of the truth of the saying that "familiarity breeds contempt," since the majority of the accidents illustrated happened to electricians and those employed about electrical plant and installations generally—the very people who ought to, and probably do, know the precautions to be observed under any given set of conditions.

Plate II. illustrates an interesting and important point—the danger of having any electric light fitting within reach of a person in a bath. The author reconstitutes the conditions of the accident in every particular, down to the post-mortem appearances. And in this case we are told that death, which occurred from touching an electric light fitting while still in the bath, was so sudden that the girl had not breathed after receiving the shock. The body was found submerged, but no water had entered the lungs. In all cases the author points out the further precautions that ought to be taken to secure safety in addition to those usually practised in any given set of conditions. One fact impressed by the illustrations is that electrical burns heal very kindly, and leave soft elastic scars and little deformity behind. In Plate L., however, is shown a curious set of changes following an electric burn at the wrist-joint. There are thickening and deformity with atrophy of bone, as shown by an X ray examination. The patient concurrently developed symptoms of progressive paralysis. The penultimate section is devoted to the effects of lightning on the body and clothing. Here is shown a case of lightning-stroke characterised by loss of consciousness, aphasia, and crossed paralysis, and yet recovery was practically complete after three months. In the last section the author deals with the influence of stray earth currents upon water-pipes and shows how the electrolytic action thereby set up may be a cause of lead-poisoning. These are the salient features of a work which should find a place in every legal and medical library.

JOURNALS AND MAGAZINES.

Proceedings of the Royal Society of Medicine. Vol. III., No. 3. January, 1910. London: Longmans, Green, and Co.—The Section of Anæsthetics is included in this number with the discussion on Lymphatism, opened by Dr. R. Salusbury Trevor in a paper which should prove a valuable contribution to the literature of a subject of importance. Dr. Trevor gives a bibliography of cases of sudden death due to the disease and a full account of a case that came under his own observation. He sets before the section the following problems: (1) the cause of sudden death in lymphatism; (2) in what subjects to suspect lymphatic hyperplasia; (3) how to diagnose it; (4) how to treat it; and (5) how to conduct anæsthesia in patients who suffer from it. In the Balneological and Climatological Section is an interesting account, by Dr. S. D. Clippingdale, of the Natural and Medical Aspects of the Chiltern Hills and Dales, including the famous Parliamentary "Hundreds." In a day which echoes and re-echoes with abuse of landlords we are glad to read this testimony from a medical man to a famous landowner of the district: "In a typical 'Rothschild Village' the public-house is unknown, and the medical man goes about with an assurance from his 'over-lord' that the non-medical wants of the sick will not be neglected—a state of things reminiscent of the feudal system, with all its advantages but with none of its disadvantages." Mr. A. G. S. Mahomed follows with a paper on Atmospheric Electricity, in which he describes some observations upon atmospheric potential and advances a graphic theory of ionisation. In the Clinical Section the following cases are described. Acromegaly, by Mr. J. R. Lunn and Dr. Robert Milne, who also contributes two cases of achondroplasia; adiposis dolorosa, by Dr. G. McMullan, a case illustrated from two extraordinary photographs, as is a similar case described by Dr. A. M. Gossage; rheumatoid arthritis with albuminuria and enlarged liver,

by Dr. W. P. Herringham; impaction of calculus in the ureter, by Mr. Albert Carless; a successful case of trephining for general epilepsy, by Mr. W. G. Spencer; two familial cases of congenital œdema and cardiac defect, by Dr. F. J. Poynton; resection of the bladder for malignant disease, by Mr. J. W. Thomson Walker; excavating rodent ulcer under treatment by radium, by Mr. Charters J. Symonds; pachydermatocele, by Mr. E. Archibald Smith and Mr. J. McDonagh; arteriovenous aneurysm with exophthalmos following an injury to the head, by Mr. F. Eve; Recklinghausen's disease, by Dr. F. Parkes Weber; and other cases by Mr. C. A. Ballance, Mr. J. D. Malcolm, and Mr. Percy W. G. Sargent. In the Dermatological Section, amongst many others, Dr. P. S. Abraham contributes a case of pemphigus vegetans, Dr. E. G. Graham Little a case of pigmented moles in a female child, and Dr. J. H. Sequeira two cases of mycosis fungoides, all of which are illustrated from excellent photographs. In the Electro-Therapeutical Section Dr. N. S. Finzi writes on radium in the treatment of malignant growths, in a paper characterised by the President of the Section in the subsequent discussion as "an admirable and just record of his work," which is the class of record needed, especially for the literature of radium. In the Laryngological Section, besides a large number of cases, Dr. R. H. Scanes Spicer's model to demonstrate the effects of what he calls "back" and "belly" breathing is described. In the Neurological Section Dr. James Taylor, Dr. E. Farquhar Buzzard, Dr. T. Grainger Stewart, Dr. Wilfred Harris, Dr. R. C. B. Wall, Dr. Arthur J. Hall, and Dr. Henry Head all describe cases. In the Obstetrical and Gynæcological Section Dr. P. D. Turner, Dr. A. H. N. Lewers, Dr. L. Garrett Anderson, Mr. J. D. Barris, Mr. H. J. Paterson, and Dr. Walter Tate describe interesting operations and specimens, and Dr. Clifford White contributes a note on a case of quadruplets born at the twenty-sixth week, two of which were stillborn, whilst one lived for half an hour and another for five and a half hours. Their weights were 10½, 11, 18, and 18 ounces respectively. Three ova were represented, the small children being uniovular twins. Dr. J. Abernethy Willett also describes the placenta and membranes from a case of quadruplets. In the Otological Section Mr. R. Lake and Dr. Norman H. Pike give a summary of the post-operative tests in eight cases of labyrinthine disease, and Mr. Herbert Tilley, Dr. W. Milligan, Dr. A. A. Gray, and Dr. G. N. Biggs make other communications. The Pathological Section is occupied by a valuable report on the systematic histological examination of the central nervous system of a case of transverse lesion of the spinal cord in the lower cervical region by Mr. S. V. Sewell and Mr. H. Hume Turnbull, and a note by Dr. Helen Chambers on a method for studying the action of blood-fluids and other substances on the leucocytes. The Surgical Section reports the discussion on the diagnosis and treatment of duodenal ulcer opened by Mr. B. G. A. Moynihan and recently reported in our columns, whilst the Therapeutical and Pharmacological Section reports a debate on the therapeutical value of the lactic acid bacillus opened by Dr. George Herschell, in which he utters the warning that many of the commercial preparations do not contain the genuine Bulgarian bacillus.

The Liverpool Medico-Chirurgical Journal.—This quarterly magazine may be relied upon for interesting articles, and the January number does not disappoint us. It opens with a historical sketch of Dr. John Rutter, founder of the Liverpool Medical Institution, written by Mr. Thomas H. Bickerton. Dr. T. R. Bradshaw deals in a clinical lecture with the management and treatment of chronic Bright's disease, and Dr. W. B. Warrington with that of diabetes mellitus, the latter writer being favourably impressed, it would seem, with the value of the "so-called oatmeal cure." Dr. John Hay discusses the condition of the heart in pulmonary tuberculosis, confirming the view that valvular disease of the heart seldom coexists with this affection; and Mr. Frank Jeans records very favourable results (eight recoveries) in ten consecutive cases of perforative peritonitis, emphasising the value of the "Fowler position" and the inexpediency of swabbing or irrigating the peritoneum. Mr. R. E. Kelly and Dr. Ernest E. Glynn record a case of pneumococcal meningitis following trauma, and Dr. William Seaman Bainbridge of New York reports unfavourably on the enzyme (trypsin) treatment of cancer, which neither checks the malignant process nor prevents metastasis.

Edinburgh Medical Journal.—In the February number Dr. Alexander Miles discusses some points in relation to compensation for injuries, and notes, as others have done, certain unfavourable aspects of recent legislation. Dr. A. Graham Butler and Dr. D. A. Welsh record a case of botryomycosis in man. Dr. Hugh S. Davidson writes on ovarian epilepsy and discusses its treatment, medicinal and operative; and an unsigned article on the State Registration of Nurses points out the practical unanimity which exists as to the desirability of the end, and also the divergences of opinion as to the means for attaining it.

The Medical Chronicle.—In the February issue is published a paper by Dr. Arthur F. Hertz on duodenal ulcer, which he regards as constituting a common disease, but one very amenable to medical treatment, thus contradicting the views which have been recently advocated that operation is called for in all such cases. Mr. A. H. Habgood discusses the incidence, signs, and complications of mitral stenosis in children, in whom this affection rarely occurs apart from other affections of the heart, and Dr. Alfred A. Mumford contributes a critical review of some recent writings on physical efficiency and the strain of school life, and emphasises the need for continuation schools and the value of learning a handicraft as a mental training.

Caledonian Medical Journal.—In the January number of this journal Dr. H. Cameron Gillies contributes a scholarly article on a Gaelic medical manuscript which almost certainly belonged to the family of Beatons who were hereditary physicians to the early kings of Scotland. Dr. Gillies prints several pages of the Gaelic original, together with an English translation. A discursive article on Anthropology by Dr. A. Macdonald of Inverness raises some interesting points. In the editorial paragraphs the members of the Caledonian Medical Society are asked to inform the secretary before March 15th whether they are favourable to holding the next annual meeting at Fort William.

MEDICINE AND THE LAW.

Medical Men's Attendance in Midwives' Cases: A Variant of the Usual Difficulty.

AT an inquest held recently at Sheffield an unusual phase of the difficulty as to fees when a medical man is summoned to a confinement attended by a midwife was presented, and it is to be noted that the good sense and tact of the coroner probably prevented the jury from taking upon themselves to blame the medical man for the death of the deceased. The evidence showed that the wife of a collier had been attended at her confinement by a woman named Lyons practising as a midwife but not on the midwives' roll. Owing to the condition of the mother before the child was born Lyons sent to ask a medical man to attend. He did not come, and another practitioner, Mr. W. F. Cockayne Bennett, was applied to, but refused unless his fee were paid. Afterwards the authority of the relieving officer was obtained and Mr. Bennett attended. The child had then been born two hours and the condition of the mother was such that she was

removed to the hospital at once, where she died. Upon the question of the delay in medical attendance being raised Mr. Bennett narrated to the jury how on a previous occasion he had had a fee refused by the guardians on the ground that the case was not one under the Midwives Act, because the summons came some hours after the confinement, and because, in the view of the guardians, the need for his presence arose from the weak condition of the patient's heart and not from the childbirth. He explained before reading to the jury the guardians' letter received after the case referred to, that, although the guardians were now authorised by law to pay fees in cases under the Midwives Act, Mrs. Lyons was not certified, so that his application for a fee, made after medical attendance had been given, would probably have been refused. It was, in fact, a case which was not under the Act, although the sending for a medical practitioner may have been due to the course prescribed in cases to which the Act applies. Mr. Bennett appears to have put his position as a medical man clearly before the jury, explaining that having been refused a fee before in a letter, the terms of which were before them, he did not wish to lose his rest and at the same time lay himself open to a second refusal and to an attendance without remuneration. Members of the jury made observations in favour of and against his view, but in the end were guided to the expression of an opinion that "in similar cases the guardians should guarantee medical men's fees." Whether the person who attends a confinement be a certified midwife or not, it is unjust to expect a medical man to give as an act of charity assistance which, on the deliberate choice of the patient, a woman, whether qualified or not, has undertaken to supply in consideration of a fee. Moreover, persons entitled to have the attention of the Poor-law medical officer or of a medical man paid by the guardians should not expect a medical man to risk losing all payment owing to their omission to comply with the requisite formalities. After all, it is the relations, or the patient herself, who are primarily concerned with her safety, and it may be suggested that it might be useful, if it were possible, to obtain from the guardians a provisional order for medical attendance in the event of the necessity for it arising. This would apply in any cases like that above described, in which remuneration sought afterwards would possibly be refused. It may be noted that Mrs. Lyons referred to in the above case, who stated that she had practised as a midwife for nearly 40 years, will have to desist from so doing on and after April 1st. At all events, she will be liable to a fine of £10 if she practises habitually and for gain.

Fraudulent Use of the Name of a Medical Practitioner.

In THE LANCET of Nov. 20th, 1909, p. 1561, was published a letter from Messrs. Radford and Frankland, solicitors, stating that a person engaged in pushing the sale of a mineral water had been calling upon members of the medical profession and had been endeavouring to interest them in his goods by representing himself as the father of one of the assistant physicians at a metropolitan hospital, whom he named. This representation was untrue, and the letter published in THE LANCET was written with a view of stopping an extremely irritating, as well as dishonest, course of conduct likely to injure the reputation of the medical practitioner and of his father. The sequel of the case referred to has recently been made public at the Mansion House police-court, when Jacob Hertz, trading as Hertz and Co., appeared as defendant under two summonses. One of these charged him under the Merchandise Marks Act with having applied a false trade description to goods—to wit, that an "inhaler" sold by him was patented; the other summons charged the defendant under the Patents and Designs Act, 1907, with falsely representing the inhaler to be patented. The offence alleged in the two cases was practically the same, proceedings being taken under both Acts, because under the first mentioned it is a good defence if the defendant can prove that he acted without intent to defraud; under the second, falsely to describe an article as patented is an offence whatever the intent. The actual infringement of the Acts was due to the inhaler sold by Hertz bearing the inscription on its box, "Patent No. 347,538," but in addition to this there was pasted over a name previously used (the Simplex Inhaler) a strip of paper which caused the full title to appear as "The Dr. Hertz Perfect Inhaler." The inhaler was not patented in England, but it was stated at the police court that the number given referred to a German patent. This did not constitute a good defence according to the decision in the case of Wright, Crossley, and Co. *v.* W. Dobbin and Co., 15 Reports of Patent Cases, p. 21, so far as the fact of the false description is concerned, but it might have been open to the defendant to urge that no fraud was intended, in reply to the summons under the Merchandise Marks Act. In order that this defence might not be set up, however, proof was given that the defendant had not only added "Dr. Hertz" to the description of the inhaler (the surname, not the title Dr., being his), but that in arranging with Messrs. Allen and Hanburys for its sale and distribution by them had said that it was the invention and property of Dr. A. F. Hertz, assistant physician at Guy's Hospital, and also that Dr. Hertz was his, the defendant's, son. As a consequence of this Messrs. Allen and Hanburys in advertising the inhaler had sent out some thousands of circulars, supplied by the defendant, to the medical profession. This conduct of the defendant was rendered worse by the fact that before the name of Dr. Hertz had been inserted in the description of the inhaler the defendant had called upon medical men in pushing the sale of a mineral water, and had made the same representation that he was the father of "Dr. Hertz of Guy's Hospital," and had received a letter complaining of his so doing from Messrs. Radford and Frankland, Dr. Hertz's solicitors. It was at this time that they also wrote to THE LANCET the letter referred to above. The defendant denied that he had said that Dr. A. F. Hertz was his son, and alleged that the inhaler was the invention of a Dr. Hertz, formerly of Antwerp and now residing in California. The Alderman presiding at the Mansion House police court told the defendant that in his opinion he had committed a distinct fraud and fined him £20 with 10 guineas costs, and the alternative of one month's imprisonment, on the summons under the Merchandise Marks Act, and 5*s.* with 2*s.* costs, or seven days, on that under the Patents and Designs Act.

Workmen's Compensation and the Form of a Medical Referee's Certificate.

In the recent case of Jones *v.* Ebbw Vale Steel, Iron, and Coal Company, Limited, there was an appeal to the Court of Appeal which, strictly speaking, was against the award of the county court judge sitting at Tredegar, made in favour of a workman, a miner, after a certifying surgeon had certified that he was suffering from nystagmus, against which certificate the employers had appealed to a medical referee. The question at issue, however, really concerned the form in which the certificate of the medical referee had been given. The medical referee, under the regulations dated June 21st, 1907, is required to notify his decision in writing "in the form prescribed in the schedule to these regulations (subject to such additions and modifications as the circumstances of the case may require)," the form applicable to the case in question being "I dismiss (or allow) the appeal of —— against the certificate of disablement given to —— on the —— day of ——." The employers objected that the certificate given by the medical referee did not comply with the above form and did not state in terms whether or not the workman was suffering from the disease in question at the time when the certificate of the certifying surgeon was given. The Court of Appeal was of the opinion that the case must go back to the county court judge, but ultimately the parties arrived at a settlement. In commenting upon the regulation quoted and upon the form of certificate prescribed for the medical referee, the Master of the Rolls pointed out the great difficulty of applying such a form to cases of industrial disease of an intermittent character, because the medical referee was only authorised to dismiss or to allow the appeal, and he pointed out that it might not be possible for a medical referee to certify as to the condition of a workman on a particular date antecedent to his own examination of him. He suggested reconsideration of the regulation. It will be observed that the decision of the medical referee in such a case as the above has to be directed only to the question whether the certifying surgeon was or was not right, and that he is not asked to say whether in consequence of a change in the workman's condition since the examination by the certifying surgeon an alteration with regard to compensation should be made.

THE LANCET.

LONDON: SATURDAY, FEBRUARY 26, 1910.

Beneficent Foreign Bodies.

As a rule, the presence of a foreign body in the tissues has a harmful effect. It acts as an irritant, and the resulting inflammation leads to softening of the surrounding structures, so that a cavity tends to form around it, and the irritation and inflammation persist until the foreign substance is extruded from the body by a process of breaking down of the tissues intervening between it and the surface. If this does not happen the surgeon must usually intervene. The concurrence of sepsis is especially aidful in bringing about intolerance to the presence of a foreign body, and many a substance might have lain undisturbed within the body had it not been that with it had been included some micro-organisms able to flourish in the tissues. The more marked the septic condition associated with the foreign body the more rapidly does it make its presence felt, and within a very few days the need for the removal of the foreign body becomes manifest. Often, however, the sepsis, though present, is so mild in character that weeks, or even months, may elapse before any evidence is forthcoming that the foreign body is causing any disturbance. It may be said that it is wrong to speak of the foreign body being the cause of the irritation when germs are present capable of giving rise to the inflammation, but there is very definite evidence that foreign bodies which are absolutely aseptic are capable by themselves of giving rise to irritation and to such a degree of inflammation as to lead ultimately to their extrusion. In proof of this we have the fact that a readily absorbable foreign body such as catgut is much less likely to excite irritation than is one which is absorbed with difficulty or not at all, such as silk, yet silk can be rendered aseptic with much greater ease than can catgut. The explanation of this is that the absorbable catgut is removed rapidly before it has time to give rise to much irritation, while the silk, though unirritating at first, may at one time or another give rise to some trouble. The shape of a foreign body may also have an influence; the smoother it is, the less likely is it to act as an irritant, and the rougher it is, the more likely is it to disturb the tissue in which it lies. Surgical literature can supply numberless instances of bullets remaining in the body for many years without the production of any symptoms. If shape favours movement, a foreign body such as a needle may travel great distances and may pass through important structures with marvellously little irritation. Tension is nowhere caused, and this is a very important factor in the production of disturbance. A stitch which is tight enough to strangulate the tissues embraced will be much more likely to be extruded than one that exerts no tension, and the greater the tension the greater the probability of irritation and the greater the risk of extrusion.

The beneficent uses of foreign bodies in surgery are many. As ligatures they afford the best methods of stopping hæmorrhage, but not many decades have passed since it was thought bad surgery to allow a ligature to remain in the tissues; one end of the ligature was left long, and after the eighth or tenth day at each dressing the surgeon pulled gently on the ligature to see if it would come away. Even at the present time there are many who maintain that the advantages of an absorbable ligature are very great, for the non-absorbable are always liable to be extruded. Ligatures of metal have from time to time been employed, but they have never been largely adopted. For the suture of deep structures, especially in the radical cure of hernia, silver wire was for long employed, but gradually its use has been abandoned, for it was often found that one or other of the metal stitches caused some irritation sooner or later, until it cut its way out or had to be removed. The introduction of the filigree is of great interest in this connexion. It is employed to close large openings in the deeper structures in the radical cure of hernia, where the weakness of the abdominal wall precludes the possibility of otherwise preventing the recurrence of the hernia. The first attempt appears to have been made by WITZEL, who, after uniting the deeper structures as far as possible with wire sutures, formed a network by weaving the wire in and out amongst these sutures. GÖPEL employed silver wire netting which had been previously prepared. The tendency is to employ softer and more flexible wire than at first; for the stiffer the filigree the more likely is it to cause irritation, thus conforming with the general principle that for a foreign body to remain quiescent in the tissues it must not be less flexible than the tissues in which it lies, for if it be it will cause some irritation on every movement of the tissues.

In the present issue of THE LANCET we publish an article by Mr. W. ARBUTHNOT LANE on the operative treatment of an interesting case of double fracture of the leg. He there shows the results attainable by perfect apposition and complete immobilisation of the fragments. But immobility does not necessarily mean tension, for it is an essential point that there shall be as little tension as possible on the bone, for where there is much tension there will be a tendency to absorption of the bone. If screws are used it is necessary that they should not fit too tightly, and this quite apart from the risk of cracking the bone, though that danger has to be considered. But there are many other examples of the implantation of foreign bodies in the tissues in surgery where the same respect for immobility has not to be observed. In all cases in which foreign bodies are placed in the body these principles should be followed—that if unabsorbable they should never exceed in rigidity the tissues in which they lie, that they should exert as little tension or pressure as possible on the living structures, and that they should be as smooth and as unirritating chemically as circumstances will permit. The range of utility of foreign bodies at present is limited, but it is certain that in the future when we appreciate more accurately the conditions needed

for their peaceable continuance in the tissues they will be much more widely employed.

An Open-air Recovery School.

PROFESSOR RALPH P. WILLIAMS has recently presented to the Sheffield Education Committee a report upon the open-air recovery school at Whiteley Wood, and in his introductory remarks he refers to the investigation made into the condition of the Berlin school children. This inquiry showed that about 7 per cent. of the children were dull and backward, such backwardness in 50 per cent. of the cases being attributed to malnutrition and depressed vitality caused by improper feeding, insufficient sleep, and anæmia. To remedy these defects the first open-air recovery school was founded in Charlottenburg in 1904, and since then London, Halifax, Norwich, Bradford, and now Sheffield, have followed the Prussian example. A disused school some five miles from Sheffield was modified to suit the requirements, the infants' class-room being converted into a kitchen, and another class-room divided by a wooden partition. One half of this was used as a bath-room and the other half for the inspection, medical and lay, of the children. Two outside sheds were utilised—one as a dining-room, the other for a class-room in wet weather, and the total accommodation provided was for 50 children. Two female teachers were appointed and a weekly visit was made by a school nurse. The children were selected by inviting the head teachers in certain of the city schools near to a tram terminus to recommend four or more of their most anæmic and poorly nourished children, and these (100 in all) were subsequently examined by the school medical officer. In making his final selection Dr. WILLIAMS had to be influenced largely by the fact that the school was distant 1½ miles from the tram-car terminus, and although the children were driven to the school from the terminus in the morning they were left to walk across the fields to the tram in the evening. However, the children actually selected were suffering from malnutrition due to poverty, anæmia, oral sepsis, debility after operation for enlarged tonsils or adenoids, and from early pulmonary tuberculosis. As regards this latter defect, three children were credited with definite and nine with doubtful tuberculosis of the lungs, while two had tuberculous glands. But the bulk of the children were suffering from anæmia, malnutrition, and oral sepsis. Three good meals were provided daily—breakfast on arrival at 9.20 A.M., dinner at 1, and tea at 5 P.M.—and the cost for five days per week came to a little under 2*s.* 6*d.* per head, the parent contributing from 6*d.* to 2*s.* 6*d.* per week. The intellectual work occupied only 3¾ hours daily, most time being devoted to gardening, housewifery, nature study, and personal hygiene. Each day after the midday meal the children rested in their deck-chairs, and the school was open from June 21st to Oct. 20th, there being no holiday given during that period. Apparently the children came to regard the whole proceedings as one long holiday and their attendance was excellent. The actual cost of the experiment amounted to some £367, but a considerable amount of this has to be regarded as establishment expenses and therefore not a recurring item. Moreover, the grant is estimated at £70 and the parents' fees came to £18. The conveyance of the children by tram and brake formed a substantial item, £80. The immediate results of the experiment are thus grouped: cured, 17; improved, 32; same condition, 1; and we are promised a further report as to the condition of the same children in six months' time.

The medical officer regards the results as very satisfactory, although educationally many of the children were found to have lost ground in their ordinary curriculum. The children were on their return to school much brighter, more alert, and more able to cope with their daily work than formerly, and the curve as to their body weight evinces a remarkable progress. From a social standpoint they also made great advance, and the medical officer recommends that the school should be continued next year for 72 children. Several photographs are reproduced showing the condition of the children before and after their open-air school curriculum and systematic feeding, and no question can arise as to their improvement. They looked alert, fit, and happy, instead of listless, unfit, and indifferent. Indeed, it is obvious that the conditions of their lives during what is in effect a long holiday period must benefit the children both physically and morally, and the only criticism which can be levelled against it is an economical one, a consideration which would take us into regions whither we must not venture. But the parents who have received all this treatment for, at the most, 2*s.* 6*d.* a week have obtained a good return for their money, and it is, of course, not altogether improbable that the ratepayers may have been saved something in the prevention of sickness and future incapacity; but the promised report will, we trust, give us detailed information as to this, and the Charlottenburg experience is certainly satisfactory.

The "Brown Dog" of Battersea.

IT is now common knowledge that the Battersea borough council has decided by a considerable majority to repudiate the ill-advised action of its predecessors in office of five years ago and to order the return to its donors of the monument to the "Brown Dog" which was erected in the Latchmere Recreation Ground in 1906. It would hardly be worth calling further attention to the close of a policy of stupid prejudice on the part of one of the metropolitan boroughs were it not for the fact that the history of the monument affords an interesting symbol of the anti-vivisection cause. The guardians of the statue have discovered by bitter experience that the game was not worth the candle, and we have no hesitation in saying that before many years the deliberate enemies of experimental research and of the progress of medicine will discover that the price which the nation would have to pay for the adoption of their bigoted ideas would be such that the nation will have none of them. The "Brown Dog" monument was born of a lie which had received condign punishment from a British jury, it was erected in prejudice which at last has been overcome by considerations of common sense, and it was maintained in strife, which resulted inevitably from its impudent public challenge of the honour of a great profession, numbering many young men of spirit amongst the candidates for its ranks. Now the effigy is to be returned to the hands of its sponsors, who, if they were wise,

would order it to be broken up, but who, we believe, are taking up an attitude of protest.

It may be of interest to recall the circumstances of its erection. In 1903 Dr. WILLIAM M. BAYLISS, assistant professor of physiology at University College, London, brought an action for libel against the Hon. STEPHEN COLERIDGE, honorary secretary of the Antivivisection Society, which, after occupying Lord ALVERSTONE and a special jury for several days, ended in a verdict for the plaintiff for £2000 damages and costs. The libel consisted in the publication of a written statement at a meeting of the society in question, and subsequently in a newspaper, imputing the infliction of extreme cruelty on "a big brown dog of the terrier type" by the plaintiff at University College, London, where in the course of a demonstration he was alleged on the evidence of two prejudiced foreign ladies to have submitted the animal to painful experiments without having rendered it insensible to pain by the administration of an anæsthetic. Although there were many intelligent and observant persons present at the demonstration, the defence was unable to produce a single witness to support the ladies in question in their accusations—a point upon which the Lord Chief Justice made a severe comment—whilst Dr. BAYLISS produced perfectly clear and unimpeachable evidence in plenty that the animal had been properly anæsthetised throughout. In the result the antivivisection party were taught that the recklessness of speech which has often distinguished their methods of propaganda was a two-edged weapon which might do serious damage to its user. Consequent upon the action a book named "The Shambles of Science," written by the two foreign witnesses and containing the same libel, was withdrawn from circulation by its publisher, who offered a full apology to Dr. BAYLISS for having issued it. As an aftermath to the case there ensued a squabble as to whether the National Antivivisection Society as a body was defraying Mr. COLERIDGE'S expenses in the action or whether it was only asking its members to collect subscriptions for that purpose, and then the matter was happily forgotten until July, 1906, upon which date the monument to the "Brown Dog" which had formed the subject of the libel first appeared on the scene. By 32 votes to 21 the Battersea borough council accepted the offer of the International Antivivisection Council to present a statue of the dog for erection in the Latchmere Recreation Ground, and two months later the then Mayor performed the opening ceremony, although a protest appeared in the local press as to the possible danger in which the action might place the municipal purse. It was understood that the funds for the monument were provided by a lady, but the Antivivisection Council took full responsibility for the gift. The monument consisted of a small granite drinking fountain set in the middle of an asphalted waste, and surmounted by a bronze statue of a dog. The pedestal is inscribed: "In Memory of the Brown Terrier Dog Done to Death in the Laboratories of University College in February, 1903, after having endured Vivisections extending over more than two months and having been handed over from one Vivisector to another till Death came to his release." On the base of the pedestal is inscribed: "Also in memory of the 232 dogs vivisected in the same place during the year '02. 'Men and Women of England! How long shall these things be?'" whilst on the opposite side are the words, "Erected by the Antivivisection Council." The events subsequent to the erection of this standing insult to the honour of one of our great medical colleges are in recent memory. By force and guile succeeding bodies of medical students have tried to cast down the idol which the antivivisection party had erected, but money was spent without stint in its defence until, as was stated on responsible authority at a recent meeting of the Battersea council, a sum of £700 a year was being paid for special police protection to the statue. Battersea will be this much the richer for the future, but we know that the decision to return the statue to its owners has not been dictated by the exigencies of municipal finance. These may have played their part, but the injustice of maintaining a concrete libel upon the medical profession has been the mainspring of their action.

Possibly this incident and some other recent occurrences will teach the antivivisection party better manners in the future conduct of campaigns. The story of the "Brown Dog" of Battersea is a sign of the times. Intelligent people, under the beneficent instruction of the Research Defence Society and of certain enlightened journals (not medical or scientific journals, but lay papers), are beginning to realise what modern humanity owes to the scientific practice of experimental physiology. If we could imagine, for instance, the supply of antidiphtheritic serum to be stopped in response to the ignorant clamour raised against its use, can we not picture many of those who have shouted loudest against it begging for its restoration when diphtheria came to their neighbourhood, as in the old days, to take a death-toll of more than half of the children it attacked—especially if the children of these humanitarians should be amongst the sufferers? But they are saved from such a terrible lesson, for the national penalty to pay for the dereliction of medical research would be, as was the cost exacted for the maintenance of the "Brown Dog," too heavy for an intelligent community to support.

Annotations.

"Ne quid nimis."

THE IDENTIFICATION OF HUMAN BLOOD-STAINS.

THE medical man, in the exercise of his multifarious public and private duties, must of necessity come into contact with phases of conduct and emotion far removed from the experience of other citizens. Intimately conversant as he is with the human drama of suffering, anxiety, courage, and self-sacrifice, there is probably no phase of his activity which can appeal so strongly, alike to his sense of responsibility and to his appreciation of the tragedy of life, as that which passes in a court of law, himself being the chief actor, when he has been summoned by the State to assess by his professional skill the guilt or innocence of a man upon his trial for murder. Of course, this supreme proof of confidence in medical skill and integrity is rightly placed only in the expert few, but the progress of knowledge in a branch of research which may become fraught with such dreadful authority

must be of interest to all medical men no less than to the public. No medico-legal problem has gained a greater hold on the popular imagination than the identification of blood-spots, which has always figured so large in the romantic literature constructed around the annals of crime; but although the medical expert has for long been popularly invested with extraordinary powers of detection the great majority of medical men who may read these lines were taught in their student days that it was not possible to distinguish the blood of a human being from that of another mammal. But of late years, as is now generally known, the perfection of the complement reaction by the biological chemists of Germany has placed a new and delicate means of investigating this problem in the hands of the medico-legal expert, and at a meeting of the Section of State Medicine of the Royal Academy of Medicine in Ireland on Jan. 28th, the President, Professor E. J. McWeeney, delivered a most interesting address upon the Precipitin Reaction in Medico-legal Work, treating chiefly of this subject. He first reminded his audience that up to the year 1900 the difficulties in the way of certainly identifying the origin of blood-stains were practically insuperable. The differences in size between the red corpuscles of man and those of the domestic animals were insufficient to admit of certain microscopic distinction unless the blood were fresh and unaltered, which is practically never the case. It was from the bacteriological side, owing to the labours of Uhlenhuth, Wassermann, and Schütze in Germany, and of Nuttall in this country, that this unsatisfactory state of things was changed, and the biological method elaborated. Professor McWeeney then referred to his own experience of the method which he had been applying in medico-legal cases for the Crown in Ireland since 1902. Quite recently he had had to inquire into a case in which there was one spot of blood, and one only, on the clothes of a man accused of committing a murder. It was on his cap, and was no bigger than a threepenny-piece. By the aid of highly potent anti-sera and the capillary-tube method he was enabled to satisfy himself that the blood was not of human, but of equine, origin, and reported to that effect. On subsequent inquiry it was found that the accused man had been in the employment of a large horse-dealer, and had frequently to perform, or assist at, operations on horses. In another case, where a man accused of a brutal murder had tried to account for blood-stains on his knife by saying that he had been killing a goat, Professor McWeeney had been able to show that the stains in question were composed of human and not of goat's blood. The man had since been executed. Professor McWeeney then entered upon a minute description of the several steps of the method—the obtaining of the antigen, the preparation of the rabbit employed for the production of the specific anti-serum, the preparation of the stain-extract, the titration of the precipitating power of the anti-serum, and the determination of its specificity. He referred to the delicacy of the method, which could be made to reveal as little as 1-20000th gramme of albumin, and to the sources of error, the most important being the overlapping of the reaction on either sera or stain-extracts from biologically allied, and sometimes from widely removed, species as described by Nuttall. Professor McWeeney showed how these errors were to be avoided by using the antigen diluted to somewhere near the *titre* of the anti-serum. The other biological method of diluting the origin of albuminous matter—that by complement fixation—was then briefly referred to, and Professor McWeeney concluded by pointing out the wide possibilities of the precipitin method, and the uses to which it might be applied in hygienic work—such, for example, as the detection of horse and cat flesh in sausages. The address was followed by a demonstration of the mode of determining the precipitating power and specificity of a sample of anti-human serum, and the recognition by means of anti-ox-serum of the bovine origin of a blood-stain that had been over two years dried on boot leather.

BONUSES FOR BABIES.

IT is a question in ethics whether parents ought to be bribed to take the care of their infants to which in their helplessness the infants are entitled. There is no question, however, as to the benevolence which leads to the offer of the bribe. Colonel Pollitt during his tenure of the mayoralty of Ashton-under-Lyne was struck by the high death-rate among infants in that town. With a view to reducing this mortality he offered £100 to be divided among 100 mothers living in cottage homes who each brought up her child to the age of 12 months. Before the end of the year all the sovereigns were claimed. It was, no doubt, an interesting gathering when the proud parents and their friends met in the town hall under the auspices of the Ladies' Health Society and the Ashton Day Nursery. Mrs. Pollitt received a handsome bouquet from the mothers, and she and her husband were heartily thanked for their gifts. This was quite as it should be, but the question may be asked, What becomes of the sovereigns? Many of the parents may use the money judiciously, some foolishly, and others may spend it in drink. Would it be possible to let it form the nucleus of a fund for the benefit of the child later in life, which might be added to by the pence of the parents as they could afford? The chief drawback to this form of benevolence, first set on foot by Mr. Broadbent of Huddersfield, seems to be the slur cast on the character of the mothers of our manufacturing districts, as if a bribe were needed to induce them to take the care of their children that natural affection should sufficiently prompt. Unfortunately, the very success of the experiment seems to show some truth in the surmise. We may console ourselves, however, that England is not the only country in which mothers need to be bribed to look after their babies properly, for our Vienna Correspondent last week reported the private establishment in Vienna of a fund from which weekly payments of as much as a guinea a month are made to poor mothers who consent to suckle their own infants. This substantial bribe has induced a number of multiparæ to fulfil their maternal functions for the first time, and it is much to be hoped that they are spending a fair proportion of the subsidy on nourishing food for themselves and proper clothing for their babies.

THE PUBLIC ASSISTANCE OF TUBERCULOUS PATIENTS.

THE recent annual meeting of the District Provident and Charity Organisation of Manchester and Salford was only attended by about 15 people, but, as the Lord Mayor, who presided, ingeniously pointed out, the sparse attendance showed how satisfied were the vast body of its supporters, and the institutions that received its aid, with the way in which it did its great work. Certainly the organisation does useful work in investigating cases for the medical charities and so prevents imposition. The cases investigated were about 7000 more than in the previous year. Mr. Hennesey said the cases investigated averaged about 1500 a week. He spoke also of the dangers to children of from 5 to 14 years of age of consumption if they were not better nourished in early life, and regretted that there was an impression in Manchester that the society was intended to dry up the sources of charity, whereas it was meant to dispense charity more widely and more wisely. In response to a call from the Lord Mayor, Dr. J. Niven, the medical officer for the city, said he had very much at heart the provision of some assistance of a more permanent character for the families of consumptives.

He believed the absence of such assistance caused people to delay acknowledging they were ill, and to avoid seeking medical aid and the help of the hospitals. The result was that treatment was delayed till too late for the disease to be perfectly curable. This diminished very much the usefulness of hospitals for consumption, both in the cure of the disease, and in preventing its spread by infection. Another reason was that, when consumption took hold of one of a family, those exposed to infection were much more easily and much more strongly affected, if they were weakened by the absence of the nourishment which was required to enable the body to resist the disease, than if more favourable conditions obtained. Of course, when the chief wage-earner is partially or wholly disabled the grip of poverty is more and more felt. Dr. Niven thought that a fund should be started to provide a measure of assistance for a certain number of families who could not otherwise live in such a condition that they would have sufficient clothing and food to enable them to ward off the inroads of the disease. These suggestions of Dr. Niven are very important, and it is to be hoped they will bear good fruit beyond the ground in which he has planted them.

THE ESSENTIAL OILS OF THE PHARMACOPŒIA.

SINCE the publication of the 1898 edition of the British Pharmacopœia considerable progress has been made in our knowledge of essential oils, and from the data which are now available the compilers of the next edition will be enabled to include monographs which will ensure, as far as is at present possible, that the official essential oils shall have a maximum of therapeutic and odour value. The practice of adulteration has reached a high state of perfection, and sophisticators seem to have singled out essential oils for especial study, which is perhaps not surprising as their market price is, in many cases, comparatively high. At the request of the Committee of Reference in Pharmacy, which is rendering useful assistance to the Pharmacopœia Committee of the General Medical Council, Mr. C. A. Hill and Mr. J. C. Umney, two members of the Committee of Reference who have opportunities of producing and examining essential oils, recorded their views at the February evening meeting of the Pharmaceutical Society, and made a number of suggestions which may be taken as the basis for the monographs of the next Pharmacopœia. While it is now possible to assay many of the essential oils for what are admittedly their most important constituents, the authors confess that the time has not yet arrived to replace the natural oils by those constituents. Just as in the Pharmacopœia we now have nux vomica and strychnine, cinchona and quinine, opium and morphine, so we have peppermint oil and menthol, and Mr. Hill and Mr. Umney think it will be well to retain such oils as dill and caraway, and not to replace them by, or even to include, carvone. They also think it well to retain the oils of cloves and pimento, and not to include eugenol, since they are of opinion that the other bodies present in these oils make the oils themselves more readily acceptable than these, their chief constituents. In the 1898 Pharmacopœia the proportion of the actual medicinal or odorous constituents is regulated in most cases by the physical characters, and in a few cases by special tests—for instance, a due proportion of cineol, cajuput and eucalyptus oils; a due proportion of eugenol in clove and pimento oils; and at least 50 per cent. of cinnamic aldehyde in cinnamon oil. Mr. Hill and Mr. Umney propose to extend this principle to the following quantitative determinations: cineol in cajuput and eucalyptus oils; phenols in clove, pimento, and thyme oils; esters in lavender and pine oils; alcohols in peppermint, rosemary, and santal oils; citral in lemon oil; allyl-iso-thiocyanate in mustard oil. In other cases, such as dill and caraway, the official characters are in themselves sufficient to ensure high proportions of active constituents within fairly narrow limits. Mr. Hill and Mr. Umney suggest monographs for oils of orange, sweet birch, fennel, and thyme, the inclusion of which oils depends upon the decision of the Pharmacopœia Committee of the General Medical Council, and they recommend the omission of the oil of *Pinus Pumilio* and the substitution for it of the oil of *Pinus Sibirica*, which is readily obtainable pure and is probably of equal medicinal value and is of preferable odour. The authors have drafted proposed new monographs for the oils at present in the Pharmacopœia, as well as for the oils of orange, sweet birch, fennel, and thyme, and they suggest that the general processes for the estimation of alcohols and esters shall be included in the appendix to the Pharmacopœia.

ACUTE ŒDEMA OF THE LARYNX DUE TO THE PNEUMOCOCCUS.

AT a meeting of the Société Médicale des Hôpitaux of Paris on Nov. 19th, 1909, M. A. Chauffard and M. Guy Laroche reported a case in which a very rare manifestation of pneumococcic infection occurred—acute œdema of the larynx. A man, aged 40 years, was admitted into the Cochin Hospital on May 5th, 1909, in such a serious condition of laryngeal dyspnœa that tracheotomy was performed. After the operation artificial respiration was necessary to resuscitate him. The history was that on May 3rd he became feverish and had slight difficulty in swallowing. On the following day he continued to work, but the difficulty in swallowing increased until he could not take either liquids or solids. In the night dyspnœa appeared; it increased so much that he was taken to hospital. After the tracheotomy the respiration became calm and regular. On the 6th there was slight dyspnœa (a respiration rate of 26), the pulse was 136, and the temperature was 105·4° F. The tonsils were red and swollen, and on the left pillar was a hæmorrhagic point. On the inferior surface of the tongue was a small opaline and painful ulcer. Deglutition was almost impossible. The urine contained albumin. Laryngeal dyspnœa due to œdema of the larynx was diagnosed. Examination with the laryngoscope on the 8th confirmed this diagnosis. The epiglottis was found violaceous and of thrice its normal size. The mucous membrane covering the arytenoids was swollen and violaceous. The laryngeal lumen was much narrowed and the vocal cords could not be seen. The presence of abundant mucus increased the laryngeal obstruction. Neither ulceration nor false membrane could be seen. At the base of the left lung was a focus of consolidation. On this day marked herpes labialis appeared. The pneumonia proceeded without incident, and on the 10th signs of resolution were present, though the blood yielded a pure culture of the pneumococcus. From the 7th to the 14th there were aphthous stomatitis and glossitis, which increased the dysphagia. In the tracheotomy wound a greyish membrane of diphtheritic appearance formed around the cannula. This was accompanied by slight sloughing with a tendency to phagedæna. The membrane contained the pneumococcus. On the following days these various conditions improved. The state of the mouth was ameliorated and swallowing became easier. On the 13th all swelling of the epiglottis had disappeared and there remained only diffuse redness of this structure and of the arytenoids. The tracheotomy tube was removed on the 19th, but in the meantime there had appeared another pneumococcic lesion—periarthritis of the right shoulder. On the 15th there was a fluctuating swelling on the upper surface of the shoulder. Exploratory puncture yielded pus and was followed by incision through

the deltoid, which showed that the subdeltoid bursa was full of pus. A huge abscess also formed in the right thigh at the site of injection of saline solution. The pus contained the pneumococcus in pure culture. The mucus discharged by the tracheotomy tube contained a pneumococcus which would kill a mouse in 16 hours. Recovery ensued and the patient left hospital on July 18th, with only a little stiffness of the right shoulder as a relic of the long attack of pneumococcic septicæmia. Laryngitis is a very rare complication of pneumonia. A case resembling the one now reported has been recorded by Dévé.[1] An old woman had pneumonia of the right upper lobe. On the fifth day after defervescence she suffered from pain in the throat and dysphagia. Dyspnœa with stridor followed and proved fatal in 48 hours. The necropsy revealed œdematous swelling of a greenish-yellow tint over the aryteno-epiglottic folds and ventricular bands. Histological examination showed diffuse fibrino-purulent œdema of the mucous membrane of the larynx, and in the sections were numerous diplococci with the characters of the pneumococcus. This case differs from the preceding one in that the œdema of the larynx supervened during the decline of the pneumonia, whereas in the former case the œdema appeared to be, at least clinically, the first localisation of the pneumococcic infection.

PHYSICAL EDUCATION IN FOREIGN COUNTRIES.

THE joint committee of the National League for Physical Education and Improvement recently circulated a series of questions to various foreign countries as to the condition of physical education which exists in these countries respectively. Replies were received from Austria-Hungary, Belgium, France, Germany (Bavaria, Prussia, and Saxony), Greece, Holland, Scandinavia, including Sweden, Denmark, and Norway, Switzerland, the United States of America, and Chile. Broadly, the answers fall under two heads—namely, the system of education known as the "turn system," invented in Germany at the beginning of the last century by Jahn and Eiselen, and the Swedish "Ling" system, invented about the same time by P. H. Ling. These answers have now been printed as a report and issued in pamphlet form. The summary appended shows that physical education, mainly in the form of gymnastics, is, or is to be, obligatory in the schools of most countries. Games are in many cases recommended, are not as a rule obligatory, and have been introduced in but few. Medical inspection as a preliminary to physical exercises is the exception rather than the rule, except in Scandinavia. The subject is generally taught by the ordinary teacher in lower-grade schools, and by special gymnastic teachers in higher schools. The training of the gymnastic specialist varies considerably and is most thorough in Sweden and in the other countries which have adopted the Ling system more or less completely—namely, Belgium, France, and Greece. Belgium has incorporated the training with the Medical Faculty of the University of Ghent. Perhaps the most interesting part of the pamphlet is a reprint of a report on the Organisation of School Gymnastics presented to the Greek Minister of Education in 1907. This report recommends the Swedish system, and lays stress upon the necessity for the abolition of movable apparatus, such as dumb-bells, clubs, and staves. The body is to make its own resistance, and in every exercise both sides of the body are to be employed equally, so that in throwing exercises both hands are to be used alternately. "Free gymnastic games" are also recommended as teaching self-control, coöperation, and the need for corporate action. In our opinion these last-mentioned matters are by far the most important part of physical education. The knowledge of what is, and of what is not, "cricket" is of the greatest importance in every department of life, and, as Prince George of Greece points out, a child who learns the drill of gymnastic games "places confidence in his comrades besides belief in himself, recognises the good qualities of others, and sees the need for corporate action if a common end is to be won." We in this country have until recently, in our usual happy-go-lucky fashion, neglected the systematic teaching of physical exercises, except in the case of the services, and the report before us may well give our educational authorities material for consideration. A sense of discipline is the crying need of the day and this the foreign system of physical education inculcates more generally than our own systems, or rather want of system. But with the extension of physical exercises let us see that we do not lose the splendid discipline which we possess in football, cricket, and rowing. We are not blind to the merit of our national games, though we are impatient of the mischievous hero-worship which they have evoked.

[1] Normandie Médicale, June 1st, 1908, p. 306.

ENGLISH AND GERMAN VITAL STATISTICS.

LAST week a paper was read before the Royal Statistical Society by Mr. A. W. Flux, of the Board of Trade, on "Urban Vital Statistics in England and Germany." Notwithstanding the almost inevitable drawbacks to all attempts to compare international statistics, collected and tabulated under widely varying conditions, this paper is both valuable and suggestive. It shows clearly that both urban aggregation and decline in the birth-rate have, in recent years, increased at a greater rate in Germany than in England. It must, however, be remembered that these changes in Germany, which have been coincident with remarkably rapid growth of manufacture and commerce, are of much more recent origin than in England and Wales. An elaborate comparison of English and German mortality statistics seems to prove that the mean duration of life in England and Wales, based on national life-tables, exceeds that in Germany by more than three years and a half, both among males and females. This result, however, is apparently entirely due to the excess of infant mortality in Germany, more especially in German towns, in which Mr. Flux estimates the mean excess, as compared with that in English towns, to range between 25 and 30 per cent. Between the ages of 10 and 50 years, indeed, the expectation of life in Germany somewhat exceeds that in England. It is a fact, however, that notwithstanding the recent rapid increase of urban population in Germany the proportion of the population residing in rural districts still very far exceeds the proportion of rural population in England. There is little ground for doubting the soundness of these general conclusions, at which Mr. Flux arrives in his paper, but the value of much of the statistical detail therein, and of the deductions based thereon, would have been increased if he could have expressed assurance that census organisation and the registration system for births and deaths are practically identical in Germany and in England, as without such assurance there is considerable doubt as to the value of conclusions based on any comparison of international statistics. We know, for instance, that in Germany statisticians have long had the enormous advantage of a quinquennial census, whereas the value of the statistics issued in England by the Registrar-General, more especially for our large urban populations, is seriously depreciated during the latter portion of our ten-year intercensal periods, because it is out of his power in many cases to estimate even approximately the true population of our large towns. It is beyond question that the official estimates of the present population of several of the large English towns in which the population doubled, or nearly doubled,

between 1891 and 1901, based as they are upon these exceptional rates of increase, very considerably exceed the true population. One of the results of these excessive estimates is to cause local sanitary authorities to considerably undertate the death-rate, and thus to congratulate themselves on imaginary evidence of exceptionally favourable sanitary condition. This defect of our vital statistics can only be obviated by due provision for a quinquennial census of the number and ages of the population of England and Wales.

THE SUNSHINE AND RAINFALL OF LAST YEAR.

ACCORDING to a summary of the weather for last year recently published by the Meteorological Office the general conditions over the United Kingdom, considered as a whole, were neither dull nor especially rainy. This will doubtless appear somewhat surprising to many who, living in large centres of population, are apt to judge the year's weather by that which happens to prevail during the summer holiday season. The arguments of the sunshine recorders and the rain gauge are, however, extremely difficult to refute, and the figures obtained from these instruments show that, except in certain districts in the east and north-east of England, the much-abused weather was most generous in its sunshine, the excess over the average being especially large in London. A large number of places both on the coast and inland recorded a total equivalent to a mean of about half an hour per day more than the normal, while London and Blackpool, where the excess was largest, were favoured with about 40 minutes per day more than during an average year. The mean for each day in London (Westminster) was 3¾ hours, and on the south coast of England about 5¼ hours, while at Manchester, the most sunless city, it was no more than about 2¾ hours. With regard to rainfall, it is shown that while some localities in Great Britain were drier than usual, many others were wetter, although the total excess of rain was in many cases rather slight. In Ireland nearly every place had less rain than usual, the deficit in the south and south-west being very large. The year, considered in its entirety, may be said therefore to have vindicated its character. But when the weather of the summer is examined it must be admitted at once that the complaints heard from nearly all sides were fully justified. There was really nothing worthy the name of summer except a fortnight of fine, warm weather in August, which commenced soon after the Bank Holiday; and after that had been superseded by rain and gloom, there was nothing worthy to be called autumn until November. After April and May had both beaten the record for sunshine and given too little rather than too much rain, June was a dismal failure. In some localities, among which was London, it made itself notorious by yielding less sunshine than any June on record; in London there were only about three hours per day. 19 of its days were more or less rainy, and its aggregate rainfall large. July brought little improvement. In Westminster its sunshine was only about half an hour per day below the average, but along the south coast of England its deficiency amounted to about two hours daily. The number of more or less rainy days was also high; in London there were, as in June, 19. After its fine fortnight August could do no more, and its later days were but an unwelcome repetition of so many of those in July. In Westminster, however, there were only nine days with rain, while the total duration of sunshine exceeded the average by 48 hours. September and October were cold and rainy over the country generally; London had 20 rainy days in the former and 24 in the latter month. A very important feature in London and the south and south-east of England generally was that the number of days on which rain fell was greater than the average. Although the total rainfall in Westminster was only 0·5 inch in excess of the average the number of days on which it fell was no less than 200, whereas the average is no more than 165 days. This unusual rain frequency was chiefly owing to the wet summer period and the miserable months of early autumn.

LIGATURE OF THE SPERMATIC ARTERY IN THE OPERATION FOR VARICOCELE.

THE importance of a knowledge of the effects of ligature of the spermatic artery depends chiefly on the frequency with which it is involved in the modern operation for varicocele, and the effects, immediate and remote, of such ligature on the vitality and nutrition of the testis itself. Divergent views on the consequences of this procedure have been held from time to time. Harvey[1] ligatured the spermatic in an attempt to limit the growth of a scrotal tumour which was only temporarily successful, as modern knowledge of the growth of tumours would have led one to expect. Later, Wardrop[2] described a case where atrophy of the testes occurred in a middle-aged man who had an aneurysm of the abdominal aorta occluding both spermatics. Sir Astley Cooper[3] experimentally divided all the structure of the cord (artery, veins, and vas) between two ligatures and as a consequence got sloughing of the testis. The disastrous result of this experiment, coupled with the great name of its author, had a paralysing effect for many years on all operations on the cord. The risk of venous thrombosis in pre-Listerian days, the scrotal incision for varicocele with its inevitable septic sequelæ, and the supposed risk of tying the spermatic artery in the operation, all helped to deter surgeons from attempting to deal radically with the condition. Finally, the experiments by Miflet[4] on dogs, in which the arrangement of vessels is practically identical with those in man, seemed to show that ligature of the spermatic produced atrophy of the testis, as the spermatics were "end" or "terminal" arteries in the sense used by Cohnheim. Meanwhile, the spread of Listerian ideas was rapidly widening the field of possible surgery; tentative open operations on the varicose condition of the pampiniform plexus were attempted; and elaborate directions given as to how to avoid including the spermatic artery in the ligature. Again, following quite a different line of thought, and remembering Wardrop's observations and Miflet's experiments, attempts were made, by deliberately tying the arteries, to produce atrophy of the testes as a substitute for castration in the now obsolete operation for reducing the size of the enlarged prostate. The non-success of these latter attempts[5] and the fact that when sections of the portions excised in the operation for varicocele were examined they were almost invariably found to contain the spermatic artery, cast the whole subject again into the melting-pot of dispute. Operating surgeons (Bennett,[6] Kocher, Treves[7]) asserted that ligature of the artery with the vein made no difference, the testis being adequately supplied by the artery to the vas, Bennett, indeed, asserting that the removal of the artery was an advantage, preventing the organ from becoming engorged before the venous collateral circulation had been restored. The view now held by most surgeons may be taken as follows: That ligature of the spermatic artery is practically unavoidable in the operation for varicocele, and that no ill-effects follow provided that

[1] Harvey: Anat. Exercitations Concerning the Generation of Living Creatures.
[2] Wardrop: Note to Baillie's Works, ii–315.
[3] Astley Cooper: Diseases of the Testis.
[4] Miflet, quoted by Griffiths, Ligature of the Spermatic Artery, Journal of Anatomy and Physiology, vol. xxx.
[5] White: Annals of Surgery, July, 1895.
[6] William Bennett on Varicocele.
[7] Treves: Operative Surgery.

the vas, its artery, a few veins around it, and the sympathetic nerves of the testis which go with the vas are left undisturbed.[8]

THE ART OF EATING.

EATING, that is to say rational eating, as a means not only of supplying fuel to the organism but as bringing about a condition of euphoria and of good health, has always been a matter of consideration to medical men and other men of affairs, such, for instance, as Napoleon, who, it will be remembered, said, "An army marches on its stomach." That brilliant worldling Brillat-Savarin wrote a delightful, and for the most part sound, work entitled "Physiologie du Goût"; and one of the best cookery books in the English language—namely, "The Cook's Oracle"—was written by that eminent physician Dr. W. Kitchener. Of recent years, however, the physiology of eating has become a subject to be considered from an exceedingly serious point of view, and numberless societies more or less faddy are devoted to "rational foods" and other forms of gastronomic heresy. As a contrast to all the literature issued by such societies, a book has recently appeared written, as is only fitting, by a Frenchman.[1] Its subtitle is "Manuel d'Alimentation Rationelle," and Dr. Armand Gautier has written a laudatory and illuminating preface thereto. Dr. Gouraud's book is written upon what is to us quite a new plan. He takes the various articles of food—meat, fish, milk, cheese, eggs, and so on—in order and discusses their preparation or source, the ways in which they are used, and their chemical composition; then follows a section entitled "Répercussions," a word difficult to translate, but which may be rendered "influence." From the study of the "répercussion" Dr. Gouraud proceeds to deduce the reasons for the use of any particular food or for its rejection. He also in the case of some foods—e.g., vegetables, milk, and grapes—gives an account of their use as particular diets, with the diseases in which such diets have been found useful and the indications for or against prescribing them. His definition of a rational diet may be quoted. It is one which, "while pleasant to the taste, maintains the bodily equilibrium, favours the easy working (*jeu*) of all our organs, and reduces to a minimum the work which its presence necessarily imposes on them." The chapter on vegetarianism is admirable and should be studied by all medical men of the present day, for vegetarianism, like so many other things which have much good in them, has been so exploited by cranks and made to connote all sorts of revolutionary ideas, that the real good in it has been much obscured. We are grateful to Dr. Gouraud for a plain, practical work written in a style which makes it pleasant as well as profitable to read.

THE WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

THE West London Medico-Chirurgical Society now numbers over 620 members, and the successful banquet which it held on the evening of Feb. 16th in the Wharncliffe Rooms afforded a striking demonstration of its vitality no less than of the organising powers of Mr. W. E. Fry and Mr. H. M. Page, its honorary secretaries. The chair was naturally occupied by the President, Dr. Neville T. Wood, who had on his right hand Inspector-General James Porter, C.B., and on his left Sir William Church, Bart., who in the course of his eloquent speech in support of the toast of the evening—namely, that of the society—showed that there is ample room in London for the co-existence of such an association and of the great amalgamated society of the medical sciences over which he himself presides. The only shadow on the festivity of the evening was the absence of the late Mr. C. B. Keetley, to whom, as Sir William Church said, the West London Society owes its existence, and whose energy, zeal, and powers of organisation brought it into the position which it now occupies, an estimate which was corroborated by the chairman in replying to the toast. Sir William Church also reminded the society that to the West London Hospital, with which Mr. Keetley as well as the society were so closely associated, is due in chief measure the introduction of post-graduate teaching into the metropolis, and he spoke with admiration of the roll of past Cavendish lecturers. An interesting feature of the evening was the presentation of silver candelabra and a silver salver to Dr. Leonard Dobson and Mr. John Pardoe respectively as a token of the society's gratitude for the manner in which they have respectively served the society's journal in the capacity of editor and editorial secretary during the last six years. In making the presentation the chairman alluded to the work of Mr. W. McAdam Eccles and Mr. Percy Dunn in founding the journal, and recounted some of the difficulties which they had had to overcome and the worthy way in which their work had been continued by the recipients of the present gifts, who acknowledged them in suitable terms. The toast of "The Imperial Forces" was proposed by Mr. F. Swinford Edwards, who proclaimed warmly his belief in universal military service as the only way of ensuring the safety of the nation, an expression of opinion that was acclaimed by the company. Inspector-General Porter, in replying for the toast, gave a reassuring account of the state of the national defences and alluded confidently to the efficiency of the Navy both as regards ships and *personnel*. He spoke of his own intention to keep the naval medical service in a state of readiness for war and made an interesting allusion to the efficient state of the sister service in the United States, as it had been revealed to him in a recent visit to America. Lastly, he commended the medical branch of the Naval League to the active support of the meeting. The remaining toast of "Kindred Societies and Guests" was given by Mr. Eccles and responded to by Mr. L. A. Bidwell, President of the Chelsea Clinical Society. Amongst those present at the dinner were Colonel T. H. Hendley, C.I.E., Inspector-General R. Bentham, R.N., Dr. J. A. Mansell Moullin, Mr. Cuthbert Lockyer, Dr. A. H. N. Lewers, Dr. T. Grainger Stewart, Mr. R. Lake, Mr. Reginald Morton, Mr. G. Pernet, Mr. Cecil Leaf, and Mr. R. J. Gilbert, secretary of the West London Hospital. We must not omit to refer to the charming programme of vocal music which was performed during the evening by Miss Edith Kirkwood and Mr. Harold Wilde, and to the equally accomplished performances of Miss Nadia Silva on the violin.

THE OUTBREAK OF ENTERIC FEVER IN MADEIRA.

A LOCALISED outbreak of enteric fever has occurred in Madeira at a large hotel where at least 200 visitors and their servants are passing the winter season. Two maid-servants sickened first and subsequently others. Mostly English and German servants were attacked, numbering at the present moment about 15 persons. The bedrooms of the valets and maids are scattered throughout the hotel in the vicinity of their employers' apartments, and the steward's room, where they assemble, is a spacious hall far removed from lavatories and the usual association of typhoid infection. Though there is no epidemic, several solitary cases of enteric fever are reported from the mountain slopes around Funchal, but the extensive district served by the running stream which supplies the hotel has been singularly free from

[8] Keen's Surgery, vol. iv., p. 611.

[1] Que Faut-Il Manger: Manuel d'Alimentation Rationelle. By Dr F. X. Gouraud. Paris: Jules Rousset. 1910. Pp. 327. Price 3.50 francs.

the disease. Nevertheless, the victims of the present outbreak are mostly water-drinkers and may easily have had access, notwithstanding the supply from Pasteur filters, to the unfiltered water of the stream above mentioned. The milk coming to the hotel is all boiled, and has been consumed universally with apparent immunity. A large and neighbouring house has been prepared to receive the sick, who are all doing well. An expert sanitary inspector is on his way from London, and with the drastic measures of cleansing, disinfection, and precaution now in progress the present outbreak should soon be overcome. Meanwhile the steamship companies have been notified as to what has happened. Our correspondent in Madeira, who sends us this information, adds, "The position of the hotel, built in spacious grounds upon the naked basaltic outcrop of a sea-cliff promontory, is delightful. But when private enterprise has done its best, the apathy or indifference of the municipality of Funchal to the most elementary requirements of their matchless health resort is on all hands felt to be deplorable and disastrous; for as yet, though the expenditure has long since been sanctioned by the Government, we have no efficient supply of water. Much good, however, may come from our present trouble now that radical measures are being taken to fix its responsibility."

Mr. Ernest Blechynden Waggett, M.B., B.C. Cantab., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed surgeon in ordinary to Their Royal Highnesses Prince and Princess Christian of Schleswig-Holstein.

THE King has appointed Sir Thomas Myles, M.D., B.C. Dub., F.R.C.S. Irel., to be one of the honorary surgeons to His Majesty in Ireland in the room of Sir William Thomson, C.B., deceased.

MEDICAL MEN AND THE PETROL TAX.—The Motor Union has received from the Board of Customs and Excise a letter stating that special forms for the purpose of enabling members of the medical profession to claim repayment of motor spirit duty at 3*d.* per gallon have not been prepared; but the officers of the Department have been instructed that form No. 232 B, for claiming repayment of one half of the full duty, must be adapted for claiming the full duty. A medical practitioner may obtain the necessary forms from the local officer of Customs and Excise, and in the application for them it should be explained that it is proposed to claim repayment of the whole of the duty and not one-half. The letter also states that for the present repayment of duty may not be claimed on motor spirit received by a medical practitioner on or after Dec. 4th last, although it may have been used before Jan. 1st. The letter was accompanied by a specimen form No. 232 B, showing the alterations which must be made to adapt it for a claim for the full duty.

HUNTERIAN SOCIETY.—The annual dinner of this society was held on Feb. 16th at the Café Royal, the President, Mr. T. H. Openshaw, C.M.G., being in the chair. There were 85 Fellows and guests present, including a fair sprinkling of ladies. The loyal toasts having been honoured, the toast of "The Navy, Army, and Reserve Forces" was proposed by Sir Thomas B. Crosby, and responded to by Surgeon-General W. L. Gubbins, C.B., M.V.O., Director-General A.M.S. "The Society" was proposed by Mr. Butlin, President of the Royal College of Surgeons of England, and replied to by the President. Dr. R. Hingston Fox then proposed "The Guests and Sister Societies," Sir Richard Douglas Powell, Bart., President of the Royal College of Physicians of London, and Mr. J. F. P. Rawlinson, K.C., M.P. for Cambridge University, replying; and, finally, Dr. G. Newton Pitt proposed "The Orator and Officers of the Society," Dr. R. Fortescue Fox, this year's Orator, replying. An excellent programme of music had been arranged by Mr. Hugh Lett, and was ably carried out by Mr. Barclay Gammon and Miss Belle Thynne, Miss Audrey Richardson, and Miss Christine Keay.

OBSERVATIONS ON THE CIRCULATORY SYSTEM.

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PHYSICIAN, WEST-END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM.

VIII.[1]

The Resistance of the Veins to Progressive Yielding under the Influence of the Blood Pressure.

IN the veins, as in the arteries, the muscular tissue performs an important function in counteracting the tendency of the blood pressure to cause over-stretching of the vessel wall. Indeed, this seems to me to be its essential function in their case. It was a long time a puzzle to me why the veins should be so abundantly supplied with muscular tissue, seeing that, except in the case of the portal system, there is no evidence that they are under vaso-motor control, or that their lumen is ever greatly influenced by modifications in tonus. When, however, I came to realise how pre-eminently adapted actively contracted muscle is to resist over-stretching, I realised that one of the objects of the muscular tissue in the veins is to prevent them from being over-stretched by the blood pressure and thus becoming varicose. It is true that venous blood pressure is on the whole considerably less than arterial, but it must not be forgotten that even a moderate pressure would, if long continued, suffice to cause progressive dilatation and lengthening of a vessel were its walls not peculiarly adapted to resist over-stretching, and further, that in the case of some of the veins—e.g., of the lower extremities in the upright position of the body—the blood pressure rises at times to a considerable height. It is noteworthy that (as in the case of the arteries) those veins which are required to withstand the highest pressure are the most richly endowed with muscular and elastic elements. Thus the veins (like the arteries) of the lower extremities are peculiarly rich in both these elements, while those in the head and neck are but slenderly supplied with them.

When the horizontal position is changed for the vertical the dependent veins undergo (like the corresponding arteries) active muscular contraction. This has a double object. In the first place the blood is in this way prevented from over-distending the dependent veins and thus accumulating unduly in the lower extremities; and in the second place the heightened venous tonus by bracing up the venous walls prevents them from undergoing that progressive yielding which results in varicosis. When the superficial veins of the lower extremities are defective in this latter function, either from congenital deficiency in their muscular elements or from insufficient tonus, varicosis results.

We have here, I venture to think, an important factor in the pathology of varicosis. Other anatomical factors which predispose to varicosis in the lower extremities are: deficiency of elastic tissue in the venous walls, deficiency of subcutaneous fat, and defective cutaneous elasticity. Nor must the influence of stature be forgotten in this connexion, for the taller the person the longer is the column of blood which the veins of the lower extremities are required to sustain.

The thickening which takes place in the walls of varicose veins is to be explained in exactly the same way as the corresponding thickening met with in pathologically tortuous arteries; and this no matter what the cause of the varicosis, whether, for example, it be the form so commonly met with in the superficial veins of the lower extremities, or that which occurs in the collateral veins after blockage of a venous trunk.

As regards the etiology of this latter variety of varicosis, I do not suggest that a primary hypotonus plays the same part in it as in the case of the arterial tortuosity which takes place in the collateral arteries after ligature. The chief etiological factor is doubtless excessive distension from augmented venous pressure.

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Writers are all but silent in regard to the part played by the muscular media in counteracting the tendency of the

[1] Nos. I., II., III., IV., V., VI., and VII. were published in THE LANCET of Jan. 1st (p. 48), 8th (p. 121), 15th (p. 193), 22nd (p. 256), and 29th (p. 318), and Feb. 5th (p. 388) and 19th (p. 521), respectively.

blood pressure to over-stretch the blood-vessels. Among the many physiological text-books I have consulted that of Starling is the only one in which this function of the muscular media is hinted at. He writes: "Although the muscular fibres in the coat of the aorta and large arteries cannot by their contraction alter appreciably the flow of blood through these tubes, they have nevertheless an important function. Like all other kinds of unstriated muscle, they are extremely susceptible to changes in tension. Any sudden increase in the pressure within the arteries will therefore excite these fibres to contract, so that the muscular tissue is able to support and reinforce the inert elastic tissue of the arterial wall in withstanding any sudden strain caused by a great rise of arterial pressure." In this passage the function in question is recognised, although the writer does not make it clear that the muscular tissue of all the arteries, small as well as large, offers resistance, not only against sudden rises of blood, but against that never-ceasing mean pressure which is ever tending to cause a progressive yielding of the arterial tissue. Nor is any mention made of the similar function performed by the muscular tissue of the veins. Thoma, however, fully recognises the function under discussion. Thus he writes: "The walls of the vessels are the most elastic of all the tissues of the human body. In many persons they are able to bear the uninterrupted tension of the blood pressure during a long life without being in any marked degree over-stretched or dilated. No inanimate substance is equal to such a function, as continuous tension would lead to a progressive stretching and the elasticity would thereby be considerably reduced. This property of the vessel wall is accounted for by the presence of the muscular coat. This is an apparatus which is able to transform the chemical energy brought to it by the blood and lymph into energy of elasticity, and thus to maintain the normal condition of elasticity of the vessel wall."[2]

The function of muscular tissue in withstanding the stretching effects of long-continued or oft-repeated pressure is further recognised by Thoma in the following passage: "Whenever throughout the body a wall composed of soft parts is exposed to repeated high pressure muscular elements are found, and never elastic tissue alone."[3] And again: "The function of the unstriped muscle fibre in the trachea and in the entire bronchial tree is to offer resistance within the air-passages to the increased pressure that occurs in all forced expirations, as in speaking, singing, blowing, straining."[4]

* * * * *

We are now in a position to sum up the chief functions of the muscular tissue in the blood-vessels.

The arteries.—1. To modify the arterial lumen and thus: (*a*) To regulate the supply of capillary blood to different regions of the body in response to local functional requirements; and further, by controlling peripheral resistance to hold back a due proportion of blood in the arterial segment, and thus to prevent it from rushing too rapidly into the veins. This regulation is effected essentially by the arterioles. (*b*) To prevent the blood from flowing too rapidly into dependent parts and thus accumulating unduly in the capillaries and veins of such parts. (*c*) To regulate the capacity of the systemic arterial system and thus the relative quantity of blood in the arterial and venous segments of the systemic circuit. Thus when the proportion of blood in the systemic arteries is greatly augmented they tend to relax, and, contrariwise, when it is suddenly diminished they tend to become hypertonic. It is true that the arteries are able to adapt themselves to considerable variations of blood content by virtue of their passive elasticity; nevertheless, such variations generally require some modification in tonus. It would be impossible, e.g., for the systemic arterial segment to attain its maximum capacity when in a state of generalised hypertonus, no matter how powerfully the left ventricle contracted; nor, on the other hand, could it attain its minimum capacity by mere passive recoil. This does not reduce the arterial capacity to the same extent as complete hypertonus. It may be regarded as certain that in severe shock and in extreme cardiac failure when the blood accumulates in large quantity in the systemic veins, the capacity of the systemic arterial segment is by hypertonus reduced considerably beyond the limit of complete passive recoil. 2. To prevent the arteries of dependent parts from being temporarily sagged out by the hydrostatic pressure of the blood. 3. To prevent the arterial walls from being over-stretched by the long-continued action of the blood pressure, thus obviating organic dilatation and tortuosity. 4. To assist by active contraction in stopping hæmorrhage after severance of an artery.

The veins.—1. To modify the venous lumen and thus: (*a*) to regulate the rate of blood-flow and the blood pressure in the capillaries in response to local functional requirements (this regulation is effected by the venules); and (*b*) to assist in regulating the distribution of blood as between one large portion of the vascular system and another. When there is a relatively large quantity of blood in the systemic arterial segment, the tonus of the systemic veins (in which I include the portal veins) is probably greater than when the arteries contain comparatively little blood, and contrariwise. So far as the portal system of veins is concerned, these are known to be supplied with vaso-motor nerves, and there can be little doubt that the tonus of these vessels varies considerably from time to time. 2. To prevent the veins of dependent parts from being sagged out by the hydrostatic pressure of the blood. 3. To prevent the venous walls from being permanently over-stretched by the blood pressure, thus obviating varicosis. 4. To assist by active contraction in checking hæmorrhage after severance of a vein.

The Resistance of the Capillaries to Progressive Yielding under the Influence of the Blood Pressure.

We have seen that in order to prevent them from yielding progressively under the protracted influence of the blood pressure the arteries and the veins need the support of muscular and yellow elastic tissue. How are we to explain the ability of the capillaries, constituted as they are of but a single layer of endothelial cells, to withstand the blood pressure within them, a pressure which may amount—e.g., in the capillaries of the lower extremities—to upwards of 100 mm. Hg.? How comes it that they do not undergo a progressive yielding issuing in dilatation and tortuosity, or that they do not burst outright?

The explanation is doubtless to be sought in the fact that in consequence of the smallness of the capillary lumen the tension in the capillary wall is always kept low. Let us suppose the blood pressure in the aorta and a capillary to be the same; then, inasmuch as the vascular tension due to the blood pressure is represented by the latter multiplied into the radius of the vessel lumen, it is obvious that if the radius of the capillary is 1-500th that of the aorta the tension of the capillary wall will only be 1-500th that of the tension in the aortic wall. It has further to be remembered that all the deep-seated capillaries are supported by the tissues in which they are imbedded. Superficial capillaries, however, such as those belonging to the skin and mucous membranes, and those distributed in the walls of the pulmonary vesicles, receive comparatively little external support. It is true that the superficially situated capillaries, in common with the deeper ones, are surrounded by a certain amount of connective tissue (white and yellow elastic fibres and connective tissue cells), and that they are covered by one or more layers of epithelial cells, and this affords them some support, inadequate though it may seem. It is probable that in the case of the superficial capillaries (if not of the more deeply seated ones also) the strength of the capillary walls is regulated by the degree of pressure they are called upon to sustain. We can hardly doubt, e.g., that the capillaries distributed to the skin of the feet are better able to withstand a high blood pressure than the conjunctival capillaries, which under normal conditions are not called upon to bear more than a few mm. Hg of pressure; for not only is there (except when the head is dependent) a complete absence of hydrostatic pressure in them, but it is highly probable that their hydrodynamic pressure is kept habitually low by a due regulation of the tonus of the arterioles feeding them.

Probably no capillaries in the body are less supported than those distributed to the pulmonary alveoli, for, in order to

[2] The following passage from Thoma is also of interest in this connexion: "The walls of the arteries and veins of the lower extremity are much thicker and, in particular, are richer in *muscular and elastic fibres* [my own italics] than the walls of the vessels of the neck, and of the head. The walls of the jugular veins have very few muscular and elastic fibres, while the walls of the veins of the lower extremities are almost as rich in these elements as are many arteries. Similar, though less striking, differences are found in the arteries of the upper and lower parts of the body."—Text-book of General Pathology, Richard Thoma, translated by Alexander Bruce, 1896, p. 246.

[3] Ibid., p. 90.

[4] Ibid., p. 203.

admit of free respiratory interchange, it is necessary that as little tissue as possible shall be interposed between the pulmonary blood and the alveolar air. Their sole support consists of a delicate connective tissue (containing an abundance of yellow elastic fibres) and a single layer of flattened epithelium; a few unstriped muscle fibres can also be traced into the alveolar walls and may possibly afford some support to the capillaries.

Though thus to some extent supported from without, the ability of the pulmonary capillaries to withstand the pressure of their contained blood is doubtless, as with other capillaries, chiefly to be explained by the smallness of their lumen. It has further to be remembered that normally the pressure in the alveolar capillaries is but slight, say 10 mm. Hg. In disease, however (e.g., mitral obstruction), it may be increased considerably beyond this. Seeing that the obstruction in mitral disease is at the end of the pulmonary circuit, it is obvious that the resulting augmentation of pressure must be felt throughout the entire length of this circuit by arteries, capillaries, and veins alike. Exactly how great this augmentation may be we have no means of ascertaining, but it seems probable that it may at least reach as high a figure as 100 mm. Hg, and it is indeed remarkable that the delicately constructed and slenderly supported alveolar capillaries should be capable of withstanding so high a pressure for weeks, months—nay, even for years together. Equally remarkable is it that they should be capable of supporting for so long a time a pressure which suffices to bring about the dilatation, and ultimately the complete undoing, of the right ventricle, an organ whose massive muscular walls are many hundred times thicker than those of the capillaries. The explanation of this seeming paradox, which for long puzzled me, is to be sought for in the formula, $t = pr$: while the tension of the capillary wall can never rise beyond a low figure owing to the low value of r (radius of lumen), any decided augmentation in the diastolic pressure of the capacious right ventricle causes the tension in its walls to become greatly augmented, owing to the enormous value of r in the case of this chamber.

Rupture of the capillaries.—Though the capillaries are peculiarly adapted to withstand the pressure of blood within them, they do at times rupture when that pressure becomes excessive. This is especially the case with superficially situated capillaries. Concerning capillary rupture from primary disease of the capillary wall (such, e.g., as may result from toxic states of the blood) I shall say nothing.

The hæmoptysis of mitral disease affords a familiar instance of hæmorrhage from augmented intra-capillary pressure. As the result of the heightened pressure in the pulmonary circuit the pulmonary capillaries become dilated and tortuous, their walls at the same time undergoing considerable compensatory thickening by a multiplication of their cells, while a hyperplasia of the other elements of the alveolar wall also takes place, all of which changes (though they cannot but retard the normal respiratory interchange) doubtless serve to protect the overstrained capillaries against rupture. Another not uncommon example of capillary rupture from augmentation of intracapillary pressure is afforded by sub-conjunctival hæmorrhage. This may take place from sudden effort—e.g., whooping-cough—and presumably also from local arteriolar dilatation, especially when occurring in conjunction with heightened systemic arterial pressure. It is not unlikely that the menstrual flux is also in large measure due to dilatation of the arterioles supplying the uterine mucous membrane. We may regard it as certain that "vicarious menstruation" is brought about by a vaso-dilator mechanism. The hæmatemesis of young women, when not due to gastric ulcer—and it is only exceptionally due to it—almost certainly is.

Rupture of the retinal capillaries is not rare. These vessels are in some measure supported by the intraocular pressure, but they are doubtless normally protected from an excess of blood pressure by the tonus of the retinal arterioles. An undue relaxation of these arterioles is probably a common cause of retinal hæmorrhage.[5]

[5] In some books it is stated that the retinal arterioles are devoid of muscular fibres, but this is assuredly not the case, for their varying degrees of tonus may actually be observed by means of the ophthalmoscope.

The Resistance of the Heart and the Cardiac Valves to Progressive Yielding under the Influence of the Blood Pressure.

Like the blood-vessels, the heart and the heart valves are subjected to the action of the blood pressure, and we may now briefly inquire into the means by which they are able effectually to resist the tendency to be over-stretched by it.

The heart chambers.—So far as the muscular chambers of the heart are concerned, it has to be remembered that normally it is only during systole that the intra-cardiac pressure is high, and it is manifest that a cardiac chamber cannot undergo progressive yielding while its muscle fibres are in a state of firm contraction. During diastole, on the other hand, these fibres are in a condition of considerable, though by no means complete, relaxation, and the hypotonic heart, like the hypotonic vascular media, is comparatively yieldable to pressure. Normally, no harm comes of this, inasmuch as the intra-cardiac pressure during diastole is negative, or at most only amounts to a few mm. Hg; if, however, the diastolic pressure becomes pathologically augmented, as happens in many forms of heart disease,[6] the cardiac walls undergo progressive yielding and dilatation results. Thus the process of dilatation takes place during diastole, and it has to be remembered in this connexion that the comparatively large size of the cardiac chambers renders their walls so much the more liable to be rendered tense (in accordance with the formula $t = pr$); and further, that inasmuch as the tension in the cardiac walls increases with the dilatation, every advance in dilatation renders that process so much the easier: dilatation begets dilatation.

The cardiac valves.—The ability of the cardiac valves to withstand the blood pressure to which they are exposed is a subject of considerable interest, though, strangely enough, it has received but little attention from physiologists.

Consider the semilunar valves. These thin semi-transparent structures, somewhat thicker (as might be expected) in the left heart than in the right, consist of white and yellow elastic fibres covered with endothelium. A few muscular fibres pass to them from the adjacent arterial walls. Krehl, who first described these fibres, does not appear to assign them any function in supporting the valves when they are held closed by the pressure of blood above them. Be this as it may, one can hardly doubt that they do help in this respect. Yet, even so, it is difficult to believe that such delicate structures are capable of withstanding unaided, not for a short time only but for years together, the diastolic pressure in the large vessels above them, a pressure which in the case of the aortic valves amounts to upwards of 100 mm. Hg, one, in fact, *as great as that which the aorta itself is called upon to bear.* Let the reader ponder a moment on what would happen if a portion of the aortic wall were replaced by a window of aortic valve tissue. Can it for a moment be supposed that such a window could withstand the pressure of the aortic blood?

A point of interest in connexion with this question is the manner in which the semilunar valves close. In all the students' text-books, without exception, they are described as being driven together, forcibly hammered down as it were, by the shock of blood pressure above them, this sudden concussion and simultaneous augmentation in the tension of the valves (and of the walls of the adjacent arteries—aorta and pulmonary artery) producing the second heart sound; and we are asked to believe that the slender semilunar valves are capable of withstanding upwards of a hundred thousand such bangings every 24 hours—and this for several scores of

[6] The causes of augmented intra-cardiac diastolic pressure are: *a.* Regurgitation.—When this happens the blood is actively squirted into a cardiac chamber through its orifice of exit. Thus in aortic regurgitation the blood is driven with the full force of the aortic recoil into the relaxed left ventricle, and in mitral regurgitation it is pumped by the vigorous contraction of the left ventricle into the left auricle. The term "back-squirting," though inelegant, is more expressive of what happens in these cases than the term "regurgitation," which rather suggests a purely passive process. *b.* Inadequate systole.—This leaves an excess of residual blood in the inadequately systolising chamber, and this excess *plus* the charge of blood entering in the ordinary way gives rise to excessive diastolic distension. This is the mechanism of the left ventricular dilatation which takes place in aortic obstruction and in the obstruction resulting from generalised hypertonus of the systemic arterioles (e.g., in granular kidney). *c.* Excess of blood entering a heart chamber by the normal route.—During sprinting, e.g., the rhythmic contraction of practically the entire bodily musculature may pump the blood more rapidly into the right heart than the latter can deliver it into the lungs.

years. Such a supposition is as unwarranted as the one which regards the semilunar valves as capable of withstanding unaided the pressure of blood above them. We may, indeed, regard it as tolerably certain that these valves, far from being violently slammed, are closed gradually and gently; and further, that during ventricular diastole they must be supported on their cardiac surfaces in some manner which physiologists have not taken account of.

More than 20 years ago Mayo Collier argued for a gradual closing of the semilunar valves. Among recent writers Leonard Hill appears to be alone in holding this view. He maintains that their closure is "effected gently and leads to no sound."

In considering how the semilunar valves are supported during diastole, it must not be forgotten that they are so disposed as to receive some support from the ventricular wall, even during full ventricular diastole. I believe Sir William Savory was the first to draw attention to this fact. Among students' text-books the only one in which this point is referred to is that by Noel Paton, who draws attention to the fact that in the case of both the aortic and the pulmonary valves the lowest cusp is mounted on the cushion of the septum ventriculorum, and he argues that "the prejudicial effect of too great pressure upon these cusps is obviated by the lower cusp being mounted on the top of the muscular septum upon which the pressure falls—the other cusp shutting down upon this one." During complete ventricular diastole, however, a considerable portion of the valves is, in spite of this arrangement, left unsupported. Some other mechanism must be at work of which no account has yet been given. What its nature is I leave the physiologists to determine. Primâ facie it does not seem unlikely that a *ring of ventricular wall immediately beneath the valves remains contracted during the earlier part of diastole, and that it does not begin to relax until the intra-ventricular pressure has become sufficiently high to afford the valves substantial support.* (See note at the end of this section.)

But by whatever mechanism—anatomical, as set forth by Paton, or physiological as just suggested—the semilunar valves are supported during diastole, it is obviously insufficient of itself to prevent regurgitation in the absence of valves. This is evident from the fact that when these are rendered incompetent regurgitation occurs; and, indeed, were it otherwise they would have no *raison d'être*. On the other hand, it seems certain that the semilunar valves do not constitute the sole mechanism by which regurgitation is obviated, seeing that even in cases of extreme incompetence the amount of blood which regurgitates with each beat is—for some time at least—very much less than that which is driven through the systemic circuit, whereas, if the semilunar valves constituted the sole obstacle to regurgitation, the aortic blood would in such cases actually pass more readily backwards than forwards, seeing that the ventricular pressure during diastole, especially at the beginning of diastole, is so very much less than is the aortic pressure. I suggest that the comparatively small amount of blood which regurgitates under the circumstances is due to a diastolic sphincter action as above described.

A further question of interest presents itself at this point. Assuming the existence of such a sphincter action, it seems not improbable that as the ventricular dilatation which accompanies aortic regurgitation progresses, this sphincter action becomes increasingly inadequate, and that in this way dilatation of the left ventricle favours aortic regurgitation.[7] A dilated ventricle must also tend to favour regurgitation by providing increased room for the regurgitating blood.

Auriculo-ventricular.—We have next to consider the auriculo-ventricular valves from the point of view of the pressure they are required to sustain. This, be it noted, is no more than that which the corresponding semilunar valves have to support, the systolic pressure in each ventricle being practically the same as the aortic and pulmonary pressures respectively. Nevertheless, the auriculo-ventricular valves, of which (as in the case of the semilunar valves) the left is more powerful than the right, are much more powerfully constructed than the semilunar valves, constituted, as they are, of dense fibro-elastic membranes considerably strengthened by muscular tissue. During systole the auriculo-ventricular ring narrows considerably and the valves form a dense, compact mass, offering assuredly a far more powerful resistance to pressure than is offered by the closed semilunar valves, a resistance which is, indeed, capable of withstanding unaided the maximum intra-ventricular systolic pressure. This difference in the strength of the semilunar and the auriculo-ventricular valves is significant, seeing that each is called upon to bear the same amount of pressure. The explanation of the difference is doubtless to be sought for in the fact that while the former are buttressed by stout ventricular walls capable of affording support in the twofold way described, the latter can obtain no greater support from behind than that afforded by the comparatively thin auricular walls.

The valves of the veins.—These structures are well adapted to resist the pressure of the blood, consisting, as they do, not only of dense fibrous tissue, but also of yellow elastic and muscular tissue.

Note.—Since this paper was written I have ascertained that the view I have put forward regarding the existence of a ventricular sphincter which helps to support the semilunar valves during ventricular diastole has been experimentally proved to be correct. In a recent discussion (June, 1909) at a meeting of the Association of Physicians of Great Britain and Ireland on the existence of a mitral sphincter, I expressed the conviction that the semilunar valves must receive some support during ventricular diastole which the physiologists had not taken into account, and I put forward the view enunciated above. My remarks drew from Professor Thayer of Johns Hopkins University the interesting statement that Professor Steward had recently shown by an elaborate series of convincing experiments that the sphincter action I had prognosticated does in point of fact exist.

(To be continued.)

[7] On the other hand, the dilatation of the left ventricle in aortic regurgitation is compensatory (as was first pointed out by Dr. Herbert Davies) in so far as it enables this chamber to drive its normal charge of blood the round of the circulation with every beat: in full compensation the ventricle dilates just enough to receive its normal charge of pulmonary blood, plus the amount which is destined to regurgitate into it.

REPORT OF THE MEDICAL OFFICER FOR EDUCATION TO THE LONDON COUNTY COUNCIL.

AMONG the several appendices to the annual report of the medical officer of health of the Administrative County of London there is one to which the chairman of the Public Heath Committee directs particular attention in his prefatory address to the County Council; we refer to the report by Dr. James Kerr upon the medical work of the Council as the education authority for the metropolis. The present report consists primarily of a review of the proceedings during the last 21 months; but, in order to allow of comparison with previous reports, the statistics now presented show figures for the year ended March 31st, as well as for the calendar year ending with December, 1908. This change, which is in every way a desirable one, has been made in conformity with the regulations of the Education Code, and with the object of bringing the London reports into line with those of the provincial sanitary authorities, whose annual reports have for some years past been made up to the end of the calendar year. As Dr. Kerr's report runs to 79 closely printed folio pages, and discusses a variety of topics, most of which are of considerable public importance, we greatly miss the usual table of contents which, if present, would have materially assisted us in discussing its more salient points.

The period covered by the present report has been one of great activity in matters concerning school hygiene and the physical care of children, and Dr. Kerr tells us that still further and wide-reaching changes are in prospect, the nature of which he discusses at some length. From his remarks we gather that public opinion in the metropolis is still in need of definite instruction as to what the duties of an education authority should be and as to the due limitation of those duties. Otherwise there is danger of a labyrinth of legislative enactments as well as of a tangle of overlapping authorities, which will cause future trouble and confusion. As illustrative of this tendency the medical officer points to difficulties already experienced in London because of the overlapping of function among the several authorities concerned. "Hitherto," he says, "in our work it has for practical purposes been attempted to render unto Cæsar the

things that are Cæsar's by regarding all that concerns the child in school as under the control of the education authority and all that concerns it beyond the school as being under the control of other local authorities, but in practice there is often lack of coördination and sometimes differences of standard which give rise to results that are most grievous." In regard to personal cleanliness, for example, we learn that efforts to secure this prime necessity among school children have often been frustrated by the lack of suitable local provision for cleansing purposes. Again, during periods of diphtheria prevalence several sanitary authorities have refused to test the conditions existing in children excluded from school as suspicious, on the ground that this duty belongs to the education authority. But the education authority simply excludes such children from school until the risk of infection is past, leaving the sanitary authority to deal with suspicious cases in their own district. Existing provision for the care of idiot and imbecile children is cited as another striking instance of administrative confusion. At present, as far as we know, there is no authority that is responsible for the care of non-pauper idiot or imbecile children. A child excluded from the special schools as imbecile is generally refused help by the guardians, but in the event of the care of an imbecile child being undertaken by them the parents are thereby pauperised, even although they may have paid the whole cost of the child's maintenance in a Poor-law institution. In Dr. Kerr's judgment the most economical and practical solution of the present difficulty is this, that any public provision for protecting and aiding the growth and development of these children should be made by the education authority, but for whose past exertions the light shed on ordinary educational problems in the last few years by the study in our schools of feeble-minded and partially defective children would have been almost entirely lost.

Provision for Medical Inspection.

In May, 1904, the London County Council took over the work of the late School Board, with the exception of that connected with the medical inspection of non-provided schools. Although the experience of the School Board had shown the serious conditions existing in various directions, the work of reform was found by the Council to be so extensive as to be impossible of accomplishment by the then existing staff. Accordingly, a scheme was prepared for dealing with the general condition of the school children, the prevalence of infection, the promotion of cleanliness, the hygiene of school work, and the sanitary amendment of school buildings.

In 1906 a complete system of medical supervision was extended to all non-provided schools, and large numbers of children were discovered who ought to have been accommodated in special schools, the rolls of which increased at once from 7056 to 8892. At the end of 1908 the medical staff numbered 52, of which the chief medical officer for education and 11 assistants form the permanent staff. The statutory medical inspection of schools is carried out by a temporary staff of "school doctors," each in charge of a district and having one or more medical assistants. Each member of the temporary staff holds office for a period of three years. The school nursing staff consists of a superintendent and 51 school nurses, who undertake the supervision of personal hygiene in both elementary and secondary schools. The details of routine medical inspection of schools need not be summarised. The names of children known to possess any abnormality, except defective vision, are reported to the school doctor, who takes note of every case of defect of hearing, speech, or locomotion, and registers particulars of such defect with a view to subsequent medical treatment. The general condition of the children as regards physique and nutrition is also entered in his report, together with particulars concerning the "hygiene of school work," such as the methods and duration of study, and any other matters affecting the health either of the teachers or of the taught. Moreover, the sanitary condition of the school buildings is closely examined by the school doctor, with especial regard to the lighting, heating, and ventilation of the rooms in which work is carried on. Lastly, the teacher has abundant opportunity for discussing with the doctor all matters affecting the health of the school, and arrangements are made for admission to a special hospital of cases requiring such treatment. All the foregoing particulars are recorded in the medical register now kept in each school, and this is forwarded with the doctor's report to the head office, where the conditions requiring attention are noted and dealt with.

Education (Administrative Provisions) Act, 1907.

The whole aspect of medical inspection in elementary schools has, of course, changed since the passing of the above Act. In addition to the inspections above referred to, which will, of course, be continued, the children in 80 selected schools will in future be brought under routine inspection. In one half of these schools the examination will be conducted in conformity with the Board of Education schedule, and in the remainder the clerical records will be kept in a somewhat simpler fashion. Where practicable it is intended that the examination should be conducted in school premises, the parents being invited to attend. A school nurse and the class teacher will also be present to assist the doctor and to obtain all needful information respecting the pupils. The education medical officer is hopeful that in the process of school inspection much assistance will be derived from the school teachers, "whose duty it is," in the words of the report, "not merely to teach but to educate"; and for this purpose they must become familiar with the mental and physical qualities of their pupils. Many teachers have a praiseworthy knowledge of their charges, but all of them ought to be able to note the height, weight, visual acuity, hardness of hearing, want of clothes or personal cleanliness of the pupils, for it is essential to their success as educators that they should be alert in observing such things for themselves.

Medical Examination of Infants.

From a special examination of infants at ages from three to five years we learn that out of a total of 221 only 115 could be regarded as normally healthy, while 46 per cent. of the boys and 38 per cent. of the girls were in some way defective. The largest number of defects were due to naso-pharyngeal affections, such as enlarged tonsils, adenoids, nasal obstruction, or mouth-breathing. One or other of these conditions was present in 20 per cent. of all the infants examined and in 47 per cent. of the defectives. But the true gravity of naso-pharyngeal defects in early infancy is not apparent until later in childhood, when there supervene such serious consequences as deafness, otorrhœa, dental caries, and other associated conditions.

Enlarged Glands.

The causes of 1500 cases of enlarged glands, distributed among the schools of London, were investigated by Miss A. M. Roberts, who contributes interesting particulars to this report. Tubercle is in some cases the cause of enlarged glands, but in many cases an irritant action apparently precedes the tuberculous infection, such as the irritation of pediculi, the catarrhal changes produced by enlarged tonsils or adenoids, carious teeth, blepharitis, conjunctivitis, and other affections of low infective power. From Miss Roberts's experience it appears that the cases among girls were much more numerous than among boys, perhaps from the less frequent pediculous irritation of the scalp among the latter. On the other hand, whilst 50 per cent. of the boys had decayed teeth without enlarged glands, only 13 per cent. of the girls were similarly affected, thus evidencing the large part played by pediculi in causing such irritation. When tubercle effects lodgment in chronically inflamed glands there is always risk of its progress, so that the brain, lungs, or peritoneum may ultimately become affected. Dr. Kerr properly insists that the foregoing inquiry shows the extreme importance of cleanliness among school children, as well as the necessity for the treatment of chronically enlarged tonsils and of carious teeth.

Adenoids.

An interesting account is given of the extent to which adenoids prevail among London school children. In the course of the year 1506 children were medically examined, and of these not fewer than 663 were found affected with adenoids and enlarged tonsils, and 75 with enlarged tonsils only. Of the 2251 children on the rolls of the schools selected about 7 per cent. were in a state requiring surgical treatment. But even these figures give an imperfect idea of the mass of educational inefficiency which they represent. Inattentiveness, dulness, backwardness, spurious mental defect, varying deafness, bronchial irritation, recurring colds—these are the regular accompaniments of obstructed nasal breathing, and Dr. Kerr tells us that they

are so frequently mistaken for signs of phthisis that one lady medical inspector in another part of the country has recently attempted to show that some 14 or 15 per cent. of the elementary school children in that district are consumptive.

Underfed Children.

Dr. Kerr's critical remarks on this subject deserve attentive consideration. He tabulates evidence derived from certain of the London schools, showing the average amount of underfeeding, or rather of improper feeding, discovered in that portion of the school population; the principle of classification being (*a*) the degree of nutrition (good, indifferent, and bad), and (*b*) the amount of anæmia, as tested by colour (normal, pale, and very pale). With respect to the kind of food ordinarily given to school children experience shows that the children of the poor, and not necessarily the very poor, never eat fresh vegetables, that they rarely have fresh milk, and never enough of it; good eggs are unknown to them. They appear to live largely on bread, tea, and broth, with an occasional meal of bacon or frozen meat. This is the result either of carelessness or of ignorance, and is largely due to the fact that the mothers often have more to do than they can manage. From careful inquiry it appears that the usual breakfast of school children consists of tea with bread and butter, such cheap and wholesome food as oatmeal porridge, milk, and dripping being almost entirely denied them. The schools examined for the aforesaid purpose are arranged under three heads: (1) good schools, (2) medium schools, and (3) poor schools, and for each group tables are given in the report which deserve attentive study. "It is at once evident," says Dr. Kerr, "that although there is no direct connexion between anæmia and bad nutrition, both conditions are commonest in the poorer schools. Ill-nutrition is related largely to want of employment and consequent privation. It is also related in other cases largely to bad housing; to want of sleep and large families. Anæmia seems to be also intimately associated with the presence of adenoids, enlarged tonsils, and other similar conditions. Regarding the schools as a whole, these three conditions seem to have about equal effects, but to be principally evidenced as want of food in the poorer, want of sleep and proper domestic hygiene in the medium schools, and want of exercise and effects of debilitating disease in the better class schools."

Infectious Diseases in Schools.

A considerable portion of this report is devoted to a consideration of the extent to which school attendance is hindered by outbreaks of infectious disease. Among diseases of children of school age, the notification of which is not compulsory, the principal are measles, whooping-cough, mumps, chicken-pox, ringworm, ophthalmia, and scabies. With the exception of the first two, these diseases, although seriously affecting school attendance, are not dangerous to life. Among children's diseases measles claims the heaviest death-toll, largely because of the ignorance of parents. The first special inquiry concerning measles was undertaken at Woolwich five years ago at Dr. Kerr's suggestion, and has been continued ever since by Dr. C. J. Thomas in coöperation with Dr. Sidney Davies, the local medical officer of health. It may be said to have revolutionised our ideas on the subject, for it has given valuable information regarding the distribution and the treatment of outbreaks of measles in schools. It has resulted in a great saving of school attendance and has shown incidentally that measles fatality is capable of further reduction. The following procedure has been adopted in London generally, with the approval of the Local Government Board. The head teacher makes inquiry as to the measles history of every infant on admission to school. If a child has already had measles the fact is recorded in the register; if the child is not known to have suffered that fact likewise is recorded. The record thus established shows the proportion of children protected by previous attack to those unprotected, and it is upon this knowledge that all action is based. Immediately on the occurrence of a case of measles in a school a card is distributed to each of the unprotected children in the room warning the parents of the danger of infection and pointing out the serious character of measles. The case is then reported to the medical officer, who determines the precautionary measures desirable in view of the proportion of susceptible children in the room. School closure in outbreaks of measles is undertaken solely as a preventive measure, since it has been proved to be futile to take this step when once measles is established in a school; it is therefore carried out only on the first appearance of the disease in a class-room. Even when carried out successfully, closure in London only postpones an attack for a few months, and is of little value except when applied to babies' rooms.

Scarlet fever and diphtheria are the only notifiable diseases which to any material extent affect children at school. Charts are inserted in the report showing the incidence of both these diseases during the period under notice. Whilst the inquiries into the natural history of measles and of diphtheria have led to practical means of dealing with these diseases and have effected diminution in loss of school attendance, scarlet fever has not furnished a similar return. "We have ascertained," writes Dr. Kerr, "that the peeling stage of scarlet fever is of little importance as regards infectivity, and also that a large proportion of people escape the disease." Again he writes: "Closure of a school or department for scarlet fever, as it is now met with, may be relegated to the list of crude and unscientific measures ..... ill-considered measures of closure signify failure to detect the sources of spread, unrecognised cases possibly continuing to spread disease unchecked out of school."

In scarlet fever outbreaks occurring in London we learn that closure is now seldom applied, individual inspection and exclusion of suspicious cases being found to be of much greater utility in controlling the disease. Diphtheria is controlled in the metropolis by means of bacteriological investigation, and the exclusion and notification of children found to be harbouring bacilli. School closure for diphtheria, except in unusual circumstances, may mean loss of control of dangerous cases.

GRATUITOUS MEDICAL RELIEF IN SCOTLAND.

IN our second article on the Report of the Poor-law Commission on the position in Scotland we referred[1] to the prominent place assigned in it to the gratuitous services rendered by medical men to the poor, to the abuse of medical charities in towns by those well able to pay for treatment, and to the absence of provident dispensaries and of medical service organised upon a provident basis. Whatever undesirable features at times and in individual cases may distinguish medical assistance thus obtained and paid for by combinations of working men, it implies a quality of thrift and independence of charity which we might expect to find existing no less north than south of the Tweed. Not to offer remuneration for that which is given gratuitously to those too poor to pay for it may be a tendency arising out of a thrifty disposition, but the idea of becoming dependent upon charity is repugnant to many, and although hospitals offer temptation by opening their doors freely to the necessitous poor, and exist for that purpose, the medical man is in a different position. He, no less than his humblest patients, pursues his calling with a view to earn his living, and to ask him to supply medical attendance as an act of charity is no less begging than to petition his neighbour, who may be a merchant, for its pecuniary equivalent. Why, then, should medical charity, public and private, or the abuse of it, take the place in Scotland, as apparently it does, of that medical aid which the Poor-law should pay for and of which it should regulate the distribution?

The report of the Poor-law Commission supplies the answer and contains evidence distributed through its pages of causes which have led to an absence of deterrent shame in connexion with the seeking of free medical aid. More particularly, an appendix following the report brings before us in a compendious memorandum by Professor Smart on "The History of the Scots Laws prior to 1845," the circumstances in which begging became, as it were, part of the system of Poor-law relief. The memorandum referred to is an interesting document, tracing the law relating to vagrancy in Scotland back to two statutes passed in the reign of

[1] THE LANCET, Dec. 17th, 1909, p. 1768.

James I. (of Scotland). These were directed against able-bodied vagabonds refusing to work and preferring to live by "sorning," or sponging upon their neighbours. The first of these Acts passed in 1424–25 deliberately distinguishes the able-bodied from those for whom begging is to be recognised if not as a profession, at any rate as furnishing means of existence. "It is ordained" in it "that na thiggar be thollyt to thig, neither in burgh nor to land, betwixt fourteen and seventy years of age, but they be seen by the council of the town or the commons of the country that they may not win their living otherwise." Those thus "seen" are to be furnished with a "token" by the local authorities, and for beggars not able to display their tokens and refusing to work penalties are provided. They are to work for their living or to be burnt on the cheek and banished. The second Act, passed in 1425–26, defines the mode of inquiry with regard to idle men having no visible means of subsistence, and the principles laid down in the two Acts referred to are traceable in successive statutes relating to the subject. So far as they concern the matter under discussion they may be summarised by saying that a licence to beg was long recognised as the provision naturally to be adopted for those unable to work. The "sturdy," "strong," or "masterful" beggar was to be punished. He was on the border-line of criminality and not over-particular as to when or where he might cross it. Included with him were all "sornars," "bards," or "feigned fools," and "sic-like runners about." Those, on the other hand, who "might not win their living otherwise" found in the "awmous," or alms, a provision for their sustenance recognised by statute, subject to their compliance with the law in the matter of having a badge. This was the only legal provision made for them in the fourteenth and fifteenth centuries.

The badge or token appears at first to have been a licence to beg generally, but in 1535 an Act for the "Stanching of Maisterful Beggars" ordered that "na beggars be tholed to beg in ane parochin that are born in another," and after that each parish made its own tokens for its own beggars and extra-parochial mendicancy was an offence. Not much later than this, in 1597, the Kirk Sessions were assigned the duty of administering the Poor-laws and were enabled to "stent" or levy contributions from the inhabitants of the parish for the relief of the poor. The power of compulsory assessment for poor-relief was, however, adopted with reluctance, and very gradually through succeeding generations, the free contributions of parishioners to the offertory being almost universally preferred, and there are still four parishes in Scotland which have no legal assessment for the relief of their poor. We are not now tracing the history of the Scottish Poor-law or discussing the merits of the voluntary charity once administered universally by the Kirk Sessions, and now largely superseded by the levying of a compulsory rate. Nor are we concerned with the convenience or inconvenience of licensing beggars to solicit alms from door to door within prescribed areas, and its results with regard to general mendicancy in modern times. We mention, however, as a matter of some interest that although the licensed beggar has practically disappeared the Commission found a survivor in the person of a first-cousin of the provost of a certain town. He is stated to be an imbecile man, having the sum of £190 (a legacy) held in trust for him, enabling him to pay £2 half-yearly as rent, and being also permitted to collect the other necessities of life by "going through the houses." Our submission, however, is that legal approval of licensed begging and the subsequent elaboration of a system of poor-relief by church alms must have accustomed those in a position to help their neighbours to regard it as a duty, or as a more or less necessary obligation to do so, and that those who could give medical aid have naturally done so, either in addition to, or in the place of, money doles to the beggar and contributions to the offertory. Naturally such a tradition must have accustomed the modern poor to expect voluntary aid from the medical man rather than to pay him a small fee out of the money which the administrators of parochial alms supplied.

The licensed beggar may well have had the same feeling from the earliest days of his legal recognition, and it must often have been convenient to the medical man to help professionally rather than pecuniarily a class the membership of which between the ages of 14 and 70 years was only granted by law to "cruikit folk, blind folk, impotent folk, and waik folk." The poorer Scot has, in fact, been trained by the tradition and practice of centuries to seek personal rather than official assistance; and his neighbour, often not much better off than he, has in like manner inherited a willingness to assist him freely and without legal compulsion.

The expenditure in Scotland upon medical aid given under the Poor-law has increased slowly at first but more rapidly in recent years ever since the Poor-law Medical Relief Act of 1845 and the Medical Relief Grant of 1848. The sum so spent amounted in 1851 to but £20,311, and had risen in 1891 to £42,566; 10 years later it was £55,278; and in 1905 £66,651. In the large towns voluntary hospitals, and everywhere the charity of medical practitioners, assist in the care of the sick, some of whom are fit cases for Poor-law treatment, some of whom are properly objects of such charitable aid as the voluntary hospital and the private medical man can most advantageously supply, and of these a considerable number are persons capable of paying for their treatment but deliberately avoiding doing so. We read in the report of the Commission that the general hospitals of Glasgow are taxed to their fullest extent, the Western Infirmary having a waiting list of between 400 and 500 patients, and that similar conditions prevail at such centres as Edinburgh, Dundee, and Aberdeen. We note in the same page (p. 149) the prevalence in Scotland of "subscribers' lines" (giving the privilege of treatment), and also that "no general infirmary or hospital, so far as we have been able to ascertain, has made any systematic attempt, either by appointment of an almoner or otherwise, to institute inquiries into the circumstances of persons applying for treatment." We are told as an example of the effect of this laxness of the patient of a private medical practitioner at Glasgow who was removed to a general hospital, where he died, and who was afterwards found to be possessed of estate valued at £10,000. The gentleman who had attended him, and to whom, at the time of his removal, he owed £100 for treatment, had in the meanwhile remonstrated ineffectually with the professor who had the patient under his care in the charitable institution. The professor had no power to prevent the abuse of charity himself and was unwilling to invoke the interference of the directors of the hospital. It is added that other examples of a similar character might easily be given, and that in the case in question the admission was by "a guinea subscriber's line."

Outdoor medical relief in large towns is spoken of by the Commissioners (p. 152) as "very largely supplemented" by the medical charities and the gratuitous attendance of private practitioners. It is observed that although medical relief does not involve disfranchisement the stigma of pauperism is sometimes believed to prevent the poor from having recourse to the Poor-law until their cases have become incurable. "At the same time," the Commissioners add, "we cannot fail to observe that on this matter we have received fewer complaints from Scotland than from England. The abundance of medical charities may in great part account for this." In small towns and lowland rural districts the Commissioners find that there is no evidence of inadequate medical attendance on the poor, although they think it not improbable that the gratuitous attendance of private practitioners largely supplements the aid given under the Poor-law. In the Highlands and Islands the case is different. Owing to the poverty of their inhabitants many of the smaller parishes cannot maintain a medical officer, and a private practitioner can hardly earn a decent living in them. The problem arising out of the abuse of medical charity can scarcely occur in such localities, but is most conspicuously before us in those large towns which form the antithesis to them. There, it is estimated by one of the witnesses mentioned in the report, gratuitous medical treatment amounts in some cases to as much as 30 per cent. of the total practice of the practitioners affected. The degree in which such medical treatment is given to patients who otherwise would necessarily be treated under the Poor-law, or would go unattended, is a question discussed by different witnesses (see p. 158) without very exact conclusions being arrived at.

The remedy of such a state of things as we have referred to must come gradually; but if legislation follows the reports of the Commissioners upon the lines suggested by them, voluntary aid councils eventually should coöperate with the medical profession in the selection of cases suitable for treatment either in voluntary hospitals or in their homes by the charitable kindness of a profession ever ready to give its assistance where the gift is really and honestly needed. At

the same time public assistance authorities will eliminate from the patients of the man who now is forced by circumstances and custom to treat them as an act of charity those for whom public funds should provide medical aid. Until such legislation is accomplished it is to be hoped that improved administration of the existing Poor-law will diminish that which can but be regarded as an unjust tax upon the charitable institution and upon the private medical practitioner. The development of a healthier public opinion condemning the cadging upon voluntary hospitals and upon medical men of those who can afford to pay may also be hoped for. The organisation of medical aid upon a provident basis, moreover, does not require legislation to bring it into being where it does not now exist.

COLOUR VISION.

AT a meeting of the Royal Society of Arts on Feb. 9th, Dr. F. W. EDRIDGE-GREEN read a paper on Colour-Blindness. He first explained the theory which he has adopted to explain vision and colour vision,[1] including the evolution of the colour sense, and described briefly his spectrometer for its estimation, showing how with this instrument the limits of visibility on each side of the spectrum could be ascertained, as well as the exact size of portions of the spectrum which appear monochromatic to different persons. Proceeding to discuss the test which he advocates for sailors and engine-drivers Dr. Edridge-Green said:—

On account of the arrangement of signals by sea and land, it is necessary that persons employed in the marine and railway services should be able to recognise and distinguish between the standard red, green, and white lights under all conditions in which they are likely to be placed.

It is not only necessary to find out whether a person is able to distinguish between the red, green, and white lights, but to ascertain as well that he thoroughly understands what is meant by colour, and the individual characteristics of red, green, and white respectively. Too little attention has been paid to this in constructing tests for colour-blindness, and those who have had much practical experience in testing for this defect are aware of the ignorance which exists among uneducated persons with regard to colours. Many are under the impression that every shade of a colour is a fresh colour, and others have the most novel ideas with respect to colour. It is necessary that a sailor or engine-driver should be able to recognise a red, green, or white light by its character of redness, greenness, or whiteness respectively; that is to say, that the examinee has definite ideas of colour and is able to reason with respect to them. All persons who are not able, through physical defect, to have definite ideas of the standard colours, and to be able to distinguish between them, must be excluded from the marine and railway services. In constructing a test for colour-blindness we must not forget the element of colour-ignorance, because an engine-driver or sailor has to name a coloured light when he sees it, not to match it. He has to say to himself, "This is a red light, therefore there is danger;" and this is practically the same as if he made the observation out loud. Therefore, from the very commencement we have colour-names introduced, and it is impossible to exclude them. Making a person name a colour is an advantage, because the colour-name excludes the element of shade. If, as some persons have said, testing by colour-names is useless, then the whole series of colour-names is useless. But if I say to a friend, "That tile is red," and he agrees with me, it is evident that one object, the colour of which is by him classed as red, is also classed as red by me. The ordinary colour-names, red, blue, yellow, and green, form excellent bases for classification. The engine-driver is told that red is a "danger" signal, green a "caution" signal, and white an "all right" signal. Therefore it is very necessary that he should know what is meant by these colours. It must be noticed that it is on account of there being so many variations in hue that such great difficulty has been found in constructing an adequate test for colour-blindness, as it is the definite colours and not the variations of them of which we wish to know the number. It will be seen that it is not merely a matter of shade as far as the colour-blind are concerned, but a distinct difference in tint. The normal-sighted could divide the green of the spectrum into yellow-green, green, and blue-green, and would, in the majority of cases, be able to range all greens under these three classes. The dichromic colour-blind see two colours only and name colours in this way.

We wish to exclude all those individuals who are included in the following three classes: 1. Those who see three or less colours in the spectrum. 2. Those who, whilst being able to perceive a greater number of colours than three, have the red end of the spectrum shortened to a degree incompatible with their recognition of a red light at a distance of two miles. 3. Those who are unable to distinguish between the red, green, and white lights at the normal distance through insensitiveness of the retinal-nervous apparatus when the image on the retina is diminished in size.

The dichromic regard green and red as almost, but not quite, identical, and this fact is one which it is nearly impossible to make a person who has not thoroughly studied colour-blindness comprehend—either the colour-blind himself, the public, or an unqualified examiner. They find that many colour-blind persons are able to recognise different colours and correctly name them, and therefore set down the mistakes made to want of education in colours.

It is astonishing with what accuracy many colour-blind (dichromic) persons name colours. I have met with several who were nearly always correct when they named a colour. One educated adult in particular had become so expert that he was often able to baffle attempts made by his friends to show that he was colour-blind. When I asked him the names of various coloured objects he was nearly always correct, and did not content himself with using the ordinary colour-names but employed such terms as cerise. He told me the means he adopted; he said all colours appeared modifications of blue and yellow. The brightest and purest yellow was yellow; slightly darker and not so pure, green; darker still, red. The brightest and most typical blue, violet; less bright, blue; blue with a tinge of grey (dirty blue), purple; very impure blue, cerise. This colour appeared to him blue by day, yellow by gaslight.

The following will show how it is that the colour-blind are able, under ordinary circumstances, to distinguish between the colours included in one of theirs. All colours have not a similar degree of luminosity; thus, yellow is much the brightest colour. Red, yellow, and green have, to the dichromic colour-blind, as far as colour is concerned, a very similar appearance. They are not exactly alike in colour.

It is very important that persons belonging to the second class should be excluded, and yet none of the ordinarily used tests detect them. The rays of red at the extreme left of the spectrum are the most penetrating, as may be seen by looking at a light or the sun on a foggy day, or through several thicknesses of neutral glass. It is chiefly by these rays that we recognise a red light at a distance, and it is therefore of great importance that a sailor or engine-driver should be able to perceive them. The third class is one in which a person is able to distinguish colours easily when they are close to him, but fails to distinguish them at a distance, owing to insensibility or to the nerve-fibres supplying the central portion of his retina being impaired. As a light at a distance occupies the central portion of the visual field, it is essential that the corresponding portion of the retina should be normal. We also do not wish to exclude persons who, though partially colour-blind, have a colour-perception sufficient for all practical purposes. If the persons to be tested have to distinguish between the standard red and green lights these lights should be used as the basis of the test, because if any other test were used we should still have the same problem before us from a practical point of view. A sailor might (with reason) object to any other test, and say that because he cannot distinguish between a green and a grey wool it is no reason why he should be unable to distinguish between the red and green lights. The candidate's capacity in this respect may be tested with a lantern which I now show. By using a lantern with slides containing standard red and green glass we can obtain the necessary colours. But there are few colour-blind persons who cannot distinguish between the red and blue-green lights at a short distance. A simile will show how they are able to do this. If a normal-sighted person were to take two coloured glasses, green and blue-green, and place them in a lantern at a short distance, he would be able to distinguish between

[1] THE LANCET, Oct. 2nd, 1909, p. 986.

them with ease. He would see as much difference between them as the colour-blind (dichromic) do between the standard red and green. But as the distance became greater he would find more difficulty in distinguishing between the green and blue-green, and it would be very unsafe to trust a ship or a train to his powers, especially when one light only was shown. The dichromic colour-blind find the same difficulty with ordinary red and green. The intensity and character of the light should, therefore, be changed without the knowledge of the candidate. This may be done effectually with certain kinds of neutral glass. The glasses I use, like a mist or fog, are most transparent to the red rays at the extreme left of the spectrum, and when several glasses are used together the light allowed to pass through them has a distinctly reddish hue. The normal-sighted easily recognise coloured lights that have had their intensity diminished by these neutral glasses, but the colour-blind find great difficulty in distinguishing the colours in these circumstances. The test consists in naming coloured lights, which are shown unmodified and modified, as they would be under ordinary atmospheric conditions. The neutral glasses represent fog, the ground glass mist, and the ribbed glass rain.

The following are the objections to the wool test, which is the official test of the Board of Trade. The material for the purposes of a colour-test is not a good one. First, we have the difficulty of obtaining correctly coloured wools, then there is the great difficulty in obtaining duplicates of these wools; because two colours look alike it is not by any means necessary that they have the same composition. The probability is that if the dyes used be different the colours will differ in composition. When a good set of wools has been obtained the colours are liable to fade; and this fading will take place more rapidly in the case of some colours than in others. This will prevent the results of examinations made with one set of wools from being uniform and comparable. Then, the wools will become soiled, and this will happen in a very short time if the testing be conducted chiefly among the lower orders. Then the greens which it is necessary to pick out will become more soiled than the others, and so afford a mark of distinction to the colour-blind, who, not being confused by the striking differences of colour, are able to notice minutiæ of this kind. It will be found in testing a large number of persons that those who are colour-blind will try to find some distinguishing mark in the wools selected by others. There are other points connected with the material which enable the colour-blind to pass the test. They may distinguish between brown and green by the touch but not by the colour. The relative luminosity of the colours of wools is very great, and forms a distinguishing point to the colour-blind. An ordinary red-green colour-blind will not put a yellow wool with a green or red one, but he will put yellow glass with green or red glass.

The test colours used are a light green and a light shade of rose. A red is also used as a confirmatory test. A pure green is one of the worst possible colours to choose for a first test. If the blue-green be removed colour-blind persons may easily pass through the test without detection.

Whom are we to reject by this test? If we reject all the (so-called) partially red and green blind we shall reject many persons who are practically competent. If we only reject the (so-called) completely red or green blind we shall allow many persons who are dangerously colour-blind to officiate as signalmen. The test is more theoretical than practical, the main object of testing for colour-blindness being apparently lost sight of; thus, it has to be proved that a man who puts a confusion-colour with a green wool cannot distinguish between a red and a green light. Then when a man has put a confusion-colour with a green wool there is still the point to be decided whether he has been judging more by shade than by colour. A light green and a greenish-grey are very much alike to an uneducated man. In my experience an ignorant pentachromic or tetrachromic colour-blind (that is, a person who is partially colour-blind, but not colour-blind to an extent necessitating his rejection) is more likely to fail than an educated dichromic (red-green colour-blind). A person with central scotoma or insensitiveness to colour when occupying a small portion of the field of vision will escape detection if examined by this test. For example, I examined a person with central scotoma with my pocket colour-test (in which small pieces of coloured material are ranged in rows), and found him colour-blind with regard to red, green, and grey. I then examined him with Holmgren's test, and he went through it correctly with the greatest ease. As a light at a distance occupies the central portion of the field of vision, these persons will be found to recognise colours when close to them, but not when they are at a distance. The red end of the spectrum may be considerably shortened, so much so that a person may scarcely be able to distinguish red from black. It is obvious that this will not prevent him from matching a light green wool with other green wools. It is not by any means an efficient test. We cannot reject by it those persons who would be dangerous, as sailors or engine-drivers, and only those persons. It is also possible to instruct a red-green colour-blind so as to enable him to pass through this test with ease. I have taught an uneducated red-green colour-blind (not, of course, a candidate for one of the services) to pass through this test with less than five minutes' instruction. This man had previously painted a picture for me, representing the grass with vermilion, believing that he had made a very good match. After my instructions he picked out the correct colours with ease and certainty. It must not be supposed that these instructions were elaborate. I first told him to notice the exact colour of the test green, and when picking out the colours to be guided by colour only and not in any degree by shade. Having picked out the correct colours I showed him that they formed a series commencing at a very light green and ending at a dark one; I told him, therefore, to avoid all colours of the same shade as the test green and to note how many wools I had picked out. I then picked out a typical blue, yellow, and red, and placed them beside the test green. I then told him that he need only know four colours—red, yellow, green, and blue—and must pick out the exact hue of green, carefully avoiding all greens which inclined to yellow or blue.

In conclusion, I may mention that this test has in practice been a failure. I have examined a great many dangerously colour-blind men who have passed it, and many others have had the same experience. In the Board of Trade report for 1908 it will be seen that of those who were rejected by the wool test, and who appealed, over 53 per cent. were found to be normal sighted and to have been rejected wrongly. I hope that a committee will soon be appointed who will examine the facts fairly and carefully.

Looking Back.

FROM

THE LANCET, *SATURDAY*, Feb. 25th, 1882.

At the debate at the *London Medical Society* on Monday night, the impressions *pro* and *con* on the cholera had not abated one jot, and it was now a charge brought against the *Cons* that they would believe in *no* evidence that could be adduced by the *Pros.** Gentlemen (said Mr. HOOPER) came to him to see cases, but they never would acknowledge that any of the stages were indicative of a new disease, although out of seven cases he had attended, four had died. He showed them the blood, black as ink, thick as treacle, and not coagulated. They replied, "Oh, there is nothing peculiar about the blood." Well, the patients have no pulse, are as cold as ice, and vomit excessively before the visitors, who answer, "These things often occur in my practice." He would show the evacuations which in one case were at the time running away from the patient in a flood, of the colour and character of rice water.—"Why," the reply was, "we have seen such stools as these." The vomiting was like chyle, the exhaustion was frightful, the countenance such as he had never before seen, but it all went for nothing, for the visitors would coolly pronounce the whole disease "congestive typhus."

* This is the profession which is distinctly charged with trying to "create" a disease and raise an alarm. One of the proudest characteristics of the age, is said to be the amazing facility and speed with which men write powerful leaders in daily papers. If hasty charges and coarse insinuations are the requisites for powerful writing, then most assuredly the facility with which daily leaders are concocted need not *amaze* us.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 8284 births and 5055 deaths were registered during the week ending Feb. 19th. The annual rate of mortality in these towns, which had been equal to 17·0 and 16·6 per 1000 in the two preceding weeks, further declined to 15·8 in the week under notice. During the first seven weeks of the current quarter the annual death-rate in these towns averaged 15·7 per 1000, and the mean rate in London during the same period was also equal to 15·7. The lowest reported annual rates of mortality in the 76 towns last week were 7·4 in Hornsey, 9·1 in Aston Manor, 9·2 in King's Norton, and 9·3 in Wallasey; the rates in the other towns ranged upwards, however, to 21·8 in Burnley, 22·2 in Swansea, 22·8 in Hastings, and 23·9 in Birkenhead. In London the recorded death-rate last week was equal to 16·3 per 1000. The 5055 deaths registered in the 76 towns last week showed a further decline of 256 from the numbers returned in the two previous weeks, and included 328 which were referred to the principal epidemic diseases, against 361, 354, and 331 in the three preceding weeks; of these 328 deaths, 135 resulted from whooping-cough, 71 from measles, 47 from diphtheria, 35 from diarrhœa, 22 from scarlet fever, and 18 from "fever" (principally enteric), but not one from small-pox. The mean annual rate of mortality in the 76 towns last week from these epidemic diseases was equal to 1·0 per 1000, and corresponded with the rate in the previous week. No death from any of these epidemic diseases was registered last week in Bristol, Croydon, Brighton, Norwich, or in 11 other smaller towns; the annual death-rates therefrom ranged upwards, however, to 2·6 in Swansea, 3·0 in Hanley, 3·4 in Ipswich, and 5·8 in Burnley. The fatal cases of whooping-cough in the 76 towns, which had been 165, 157, and 162 in the three preceding weeks, declined last week to 135; they caused annual death-rates, equal to 1·5 in Walthamstow and in Hastings, 1·6 in Gateshead, and 2·5 in West Hartlepool. The 71 deaths from measles exceeded the number in the previous week by 30; the highest annual rates from this disease last week were 1·6 in Swansea, 3·4 in Ipswich, and 5·3 in Burnley. The deaths referred to diphtheria, which had been 67 and 40 in the two previous weeks, rose again last week to 47, of which 13 occurred in London and its suburban districts, 5 in Manchester and Salford, 5 in Sheffield, and 3 each in Portsmouth, Halifax, and Newcastle-on-Tyne. The 35 deaths attributed to diarrhœa were fewer by 10 than those in the previous week. The fatal cases of scarlet fever, which had been 36, 30, and 31 in the three preceding weeks, declined to 22 last week, and were fewer than in any previous week of this year; they included 9 in London and its suburban districts, 3 in Manchester and Salford, and 2 both in Blackburn and in Birmingham. The 18 deaths referred to "fever" showed an increase of 6 upon the exceptionally low number in the previous week; 2 fatal cases of enteric fever were recorded both in Portsmouth and in Nottingham. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had steadily declined in the 18 preceding weeks from 2819 to 1881, had further fallen to 1784 on Saturday last; 215 new cases of this disease were admitted to these hospitals last week, against 213 and 212 in the two preceding weeks. The Metropolitan Asylums Hospitals contained but one case of small-pox on Saturday last. Of the 1526 deaths registered in London last week, 395 were referred to pneumonia and other diseases of the respiratory system, against numbers increasing from 285 to 425 in the five preceding weeks; these 395 deaths were 42 below the corrected average number in the corresponding week of the five years 1905–09. The causes of 38, or 0·8 per cent., of the deaths registered in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in London, Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Salford, and in 47 other smaller towns; the 38 uncertified causes of death in the 76 towns last week included 7 in Birmingham, 5 in Liverpool, and 2 each in Manchester, St. Helens, Preston, and Warrington.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 870 births and 643 deaths were registered during the week ending Feb. 19th. The annual rate of mortality in these towns, which had been equal to 20·5 and 17·0 per 1000 in the two preceding weeks, rose again to 17·7 in the week under notice. During the first seven weeks of the current quarter the annual death-rate in these towns averaged 18·1 per 1000, and exceeded by 2·4 the mean rate during the same period in the 76 largest English towns. The annual death-rates last week in these eight Scotch towns ranged from 10·6 and 16·0 in Paisley and Aberdeen to 28·0 in Perth and 34·7 in Greenock. The 643 deaths from all causes in the eight towns last week showed an increase of 28 upon the number returned in the previous week, and included 69 which were referred to the principal epidemic diseases, against 100 and 92 in the two preceding weeks. These 69 deaths were equal to an annual rate of 1·9 per 1000; the mean death-rate from the same diseases in the 76 English towns last week did not exceed 1·0 per 1000. The 69 deaths from these epidemic diseases in the Scotch towns last week included 37 from measles, 11 from diarrhœa, 7 from diphtheria, 7 from whooping-cough, 5 from scarlet fever, and 2 from "fever," but not one from small-pox. The fatal cases of measles in the eight towns, which had been 54, 46, and 55 in the three preceding weeks, declined to 37 last week, of which 27 occurred in Glasgow, 4 in Edinburgh, 3 in Greenock, and 2 in Leith. The 11 deaths attributed to diarrhœa corresponded with the number in the previous week, and included 6 in Dundee and 4 in Glasgow. The 7 deaths referred to diphtheria showed a considerable decline from the numbers in recent weeks; 2 occurred both in Glasgow and in Dundee. The fatal cases of whooping-cough, which had been 9 and 7 in the two previous weeks, were again 7 last week, of which 4 were returned in Glasgow and 2 in Edinburgh. Four of the five deaths from scarlet fever were recorded in Glasgow; and of the 2 deaths referred to "fever" 1 occurred in Glasgow and 1 in Paisley. The deaths in the eight towns referred to diseases of the respiratory system, which had been 150 and 110 in the two preceding weeks, rose again last week to 135, but were 13 below the number returned in the corresponding week of last year. The causes of 15, or 2·3 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 76 English towns the proportion of uncertified causes of death last week did not exceed 0·8 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 569 births and 503 deaths were registered during the week ending Feb. 19th. The mean annual rate of mortality in these towns, which had steadily increased in the four preceding weeks from 19·1 to 26·0, declined again to 22·8 in the week under notice. During the first seven weeks of the current quarter the annual death-rate in these Irish towns averaged 22·3 per 1000, whereas the mean rate during the same period did not exceed 15·7 in the 76 largest English towns and 18·1 in the eight principal Scotch towns. The annual death-rate last week was equal to 26·5 in Dublin, 20·8 in Belfast, 26·7 in Cork, 14·4 in Londonderry, 12·3 in Limerick, and 29·2 in Waterford; the mean annual death-rate last week in the 16 smallest of the Irish towns was equal to 20·7 per 1000. The 503 deaths from all causes in the 22 town districts last week showed a decline of 72 from the number returned in the previous week, and included 32 which were referred to the principal epidemic diseases, against 30, 34, and 32 in the three preceding weeks; these 32 deaths were equal to an annual rate of 1·4 per 1000; in the 76 English towns the mean rate last week from the same diseases did not exceed 1·0 per 1000, while in the eight Scotch towns it was equal to 1·9. The 32 deaths from these diseases in the Irish towns last week included 20 from whooping-cough, 6 from diarrhœa, 3 from "fever," 2 from scarlet fever, and 1 from measles, but not one either from diphtheria or small-pox. The fatal cases of whooping-cough, which had been 25 and 19 in the two preceding weeks, rose again to 20 last week, of which 17 occurred in Belfast. Of the 3 deaths referred to "fever," 1 in Belfast was certified as enteric

and 1 in Drogheda as typhus. Both the fatal cases of scarlet fever occurred in Dublin. The deaths in the 22 town districts referred to pneumonia and other diseases of the respiratory system, which had increased in the four preceding weeks from 107 to 185, declined again last week to 130. The causes of 31, or 6·2 per cent., of the deaths registered in the Irish towns last week were not certified; in the 76 English towns the proportion of uncertified causes of death last week did not exceed 0·8 per cent., and in the eight principal Scotch towns it was equal to 2·3 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Deputy Inspector-General: T. J. Crowley to the *President*, additional, for Medical Department (to date March 4th) and to Medical Department of Admiralty (to date April 1st). Fleet-Surgeons: A. Maclean to the *Vanguard*, on commissioning; and E. Sutton to the *Bulwark*, on recommissioning, and to the *Magnificent*, on transfer of flag. Staff-Surgeons: P. L. Crosbie to the *Vivid*, additional, for disposal; W. H. Pope to the *Sapphire*, additional, and on recommissioning; G. M. Eastment to the *Vanguard*, on commissioning, and R. M. Richards to the *Vivid*, additional, for disposal; and H. P. Turnbull to the *Hannibal*, and on recommissioning. Surgeons: T. F. O'Keeffe to the *Victory*, additional, for the *Swift*, and to the *Blenheim*, additional, for the *Swift*, on commissioning; T. W. Jeffery to the *Victory*, for R.N. Barracks; and A. Davidson to the *Bulwark*, additional, on transfer of flag.

ROYAL ARMY MEDICAL CORPS.

The undermentioned to be Lieutenants (on probation) (dated Jan. 28th, 1910):—John Gilmour, Wilfrid Warwick Treves, John Thomas Simson, Campbell Robb, and Eric Thomas Gaunt.

Lieutenant (on probation) John T. Simson is seconded under the provisions of Article 300, Royal Warrant for Pay and Promotion, 1909 (dated Jan. 28th, 1910).

Lieutenant Thomas T. H. Robinson, to be Captain (dated Oct. 4th, 1909).

Lieutenant-Colonel L. W. Swabey officiates as Principal Medical Officer, Aden Brigade, during the absence, on leave, of Colonel W. A. Quayle. Lieutenant-Colonel F. S. Heuston, C.M.G., in charge of the Military Hospital at Edinburgh, has been granted leave from Feb. 14th to March 31st, with permission to travel in France. Major H. W. K. Read, Captain J. D. Richmond, Captain R. B. Hole, Captain H. Harding, and Captain M. F. Grant have arrived home from India. Lieutenant-Colonel R. D. Hodson, R.P., has been appointed to the medical charge of troops at Trowbridge. Major D. J. Collins from Wynberg, South Africa, has been appointed specialist in ophthalmology at Dublin. Major R. J. Copeland, from Meerut, has been appointed to the command of the station hospital at Darjeeling. Major H. G. Martin, from Agra, has been appointed to the command of the station hospital at Lebong. Captain J. S. Dunn, from Agra, has been granted eight months' leave. Major W. C. Poole, Major H. W. Grattan, Captain C. J. O'Gorman, D.S.O., Captain F. J. Palmer, and Captain L. M. Purser have embarked for India.

INDIAN MEDICAL SERVICE.

Surgeon-General C. P. Lukis, Director-General, Indian Medical Service, has been nominated an official member of the Legislative Council of H.E. the Governor-General of India. Colonel R. W. S. Lyons has been appointed principal medical officer, Kohat Brigade. Approval has been granted to the retirement of Lieutenant-Colonel J. Anderson, Bengal, from April 1st next. Major E. S. Peck has been appointed civil surgeon, Jullundur, on return from leave. Major H. Smith, from Jullundur, is posted to Amritsar. Major G. T. Birdwood, on the expiration of his appointment as principal of the Medical College at Agra, has been placed on special duty in the Central Provinces to inspect the Dufferin hospitals. Captain W. Tarr has been posted to the Jubbulpore District for duty. Captain H. W. Illius, civil surgeon, of Bahraich, has been appointed special plague officer to the Cawnpore and Unao Districts. Lieutenant A. de C. C. Charles has been appointed a specialist in advanced operative surgery to the Third (Lahore) Division, and Lieutenant S. J. Bhathena a specialist in midwifery and diseases of women and children to the Sixth (Poona) Division.

RESERVE OF OFFICERS.

Royal Army Medical Corps.

Supplementary List: The undermentioned to be Lieutenants (on probation):—Stephen Gordon (dated Jan. 13th, 1910); Eben Stuart Burt Hamilton (dated Jan. 24th, 1910); and Leopold Thomas Poole (dated Jan. 25th, 1910).

TERRITORIAL FORCE.

Royal Army Medical Corps.

Attached to Units other than Medical Units.—Lieutenant Alexander B. Sloan to be Captain (dated Oct. 28th, 1909); Lieutenant Frederic W. Longhurst to be Captain (dated Jan. 16th, 1910).

For attachment to Units other than Medical Units.—William John Gray (late Lieutenant, Queen's Rifle Volunteer Brigade, The Royal Scots (Lothian Regiment), to be Lieutenant (dated Jan. 1st, 1910).

DEATHS IN THE SERVICES.

Deputy Surgeon-General Alfred Eteson, C.B., I.M.S. (retired), on Feb. 15th, in his seventy-eighth year. He entered the Bengal Medical Service in 1854, was promoted to surgeon in 1866, surgeon-major in 1873, brigade-surgeon in 1879, and deputy surgeon-general in 1883. He served during the Indian Mutiny of 1857–58, and took part in the relief of Arrab, the capture of Jugdespore, and the actions of Amoreh and Khiree (mentioned in despatches and medal). He also took part in the Afghan war of 1879 (medal) and in the Akba expedition of 1883–84.

THE BRITISH RED CROSS SOCIETY.

On Feb. 18th the Lady Mayoress presided at the Mansion House over a meeting of ladies with the object of forming a branch of the British Red Cross Society in the City of London. Mr. Frank Hastings, secretary of the British Red Cross Society, explained the work of the society, remarking that 100 county branches and 295 sub-branches had been formed since 1905. At the close of the meeting it was decided to take steps, through the aldermen and leading inhabitants of the 26 City wards, to form a branch of the society in the City of London and to promote its objects in every possible direction. Later on Sir Frederick Treves will deliver an address to members of the City branch at the Mansion House.

THE UNIVERSITY OF LONDON OFFICERS TRAINING CORPS.

The first annual report of the Military Education Committee to the Senate of the University of London for the year 1909 shows that the strength of the corps at the end of the year, exclusive of the permanent staff, was 24 officers, and 783 cadets. The number of medical cadets supplied by St. Bartholomew's Hospital was 49, by Charing Cross Hospital 2, by Guy's Hospital 67, by King's College Hospital 12, by London Hospital 7, by Middlesex Hospital 64, by St. Thomas's Hospital 25, and by University College Hospital 52, making a total, including 2 medical cadets not attached to any college, of 280. It is pointed out that in the case of medical units it has been necessary to attach cadets to sections with headquarters at other hospitals than their own, students of London, Charing Cross, and King's College Hospitals being posted to the headquarters at St. Bartholomew's Hospital, students of St. Thomas's Hospital to the headquarters at Guy's Hospital, and students of the Middlesex Hospital to the headquarters at University College Hospital. The first general parade of the University of London contingent of the Officers Training Corps was held on May 12th, 1909, at South Kensington in connexion with presentation day of the University, when the Vice-Chancellor, Sir William Collins, M.P., and Sir Henry Mackinnon, K.C.B., C.V.O., Director-General of the Territorial Force, addressed the contingent. The first annual training was held at West Down North, Salisbury Plain, from July 30th to August 13th, 1909, and the first annual inspection was held in the camp on August 11th, when Major-General the Hon. Sir F. W. Stopford, K.C.M.G., K.C.V.O., reported that the discipline was excellent and that all ranks displayed great keenness. We have already referred to the importance of the work of the Officers Training Corps, and especially to the medical units, in the Students' Number of THE LANCET of August 28th, 1909, p. 592, and we again urge students from the outset of

their medical studies to begin to master the most useful methods by which they can place their expert knowledge at the disposal of their country in time of need.

THE ARMY NURSING SERVICE.

The Secretary of the War Office announces that Miss E. H. Becher, R.R.C., Principal Matron, Queen Alexandra's Imperial Military Nursing Service, has been selected to succeed Miss C. H. Keer, R.R.C., as Matron-in-Chief at the War Office when the latter vacates that appointment on April 5th next.

THE MARY KINGSLEY MEDAL.

Sir Alfred Keogh, K.C.B., is one of the recipients of the Mary Kingsley medal of the Liverpool School of Tropical Medicine.

Correspondence.

"Audi alteram partem."

REFORM AT THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

To the Editor of THE LANCET.

SIR,—All well-wishers of the Royal College of Surgeons of England must have viewed with regret the estrangement which has existed for so many years between the Council and many of the Members of the College on the question of the direct representation of the Members on the Council. I believe I am only expressing the opinion of many other Fellows when I say that a method of representation which would give the Members a voice in the Council is desirable in itself, and that if due care were taken in devising a suitable method of representation nothing but good could follow such an innovation.

It has often been argued, and not entirely without reason, that as some Fellows of the College are in general practice therefore general practitioners are not absolutely without a voice in the selection of the members of Council, and it is true that on one or two occasions a Fellow of the College in general practice has almost succeeded in being elected a member of Council. Yet little weight can really be placed on this argument. The Members as Members desire representation. The Society of Members, which strongly advocates representation, may be taken as representing the Members although it includes only a small proportion of the Members of the College. As the result of inquiries I have made among Members of the College who do not belong to that society I am convinced that the desire for representation is real and widespread, and if direct representation on the Council could be given to the Members without injury to the true interests of the College I feel sure that a very large proportion of the Fellows would concur in such a change being made. It must be borne in mind that the functions of the College are two-fold. In the first place, the College is by far the most important examining body in surgery in the British Isles, and by the high character of its examinations its influence on medical education is great and far-reaching. This duty of examining, and through its examinations guiding the training of the medical student, is the most important duty of the College of Surgeons, but it is impossible to deny that the College has yet another function and that is the maintenance of the rights of its Fellows and Members. By the very terms of its diplomas it assures its Fellows and Members that they will be upheld in the maintenance of their rights.

No one who is acquainted with medical education and examination in London will doubt for a moment that the College has nobly fulfilled its first duty. The examinations are a pattern to all examining bodies; its library is the most valuable medical library on this side the Atlantic, and its museum of human and comparative anatomy and pathology is unsurpassed by any other in the world. Can we, however, speak with the same certainty of its fulfilment of its other function? Of one thing I am certain, the Council has always endeavoured to fulfil to the utmost of its ability what it considered to be its duty with regard to its Fellows and Members.

The only point about which there can be any dispute is as to the duties which the College has with regard to its Fellows and Members. There is, I acknowledge, room for two opinions, but the Members are of opinion that the position of general practitioners and their rights are not sufficiently recognised by the Council, not because the Council disregards them, but because the Council is unaware of them. The Members claim that they should be represented on the Council, for they hold that by no other method can their difficulties, their wishes, their hopes, and their reasons be adequately brought before the Council. As I have said already, I feel sure that many of the Fellows are willing and even anxious to grant the request of the Members, provided that the chief function of the College does not suffer harm. I feel sure, also, that these feelings are shared by many members of the Council itself, and I hope that before long some method of representation may be devised. For myself, I think that if the Members were allowed to elect three members of the Council they would be satisfied with this amount of representation, and they would feel no longer, as many of them do feel at present, that however well-intentioned the Council may be, it does not, and cannot, satisfactorily represent them.

Not many years ago the Association of Fellows did good work in advocating measures of reform in the College. Would it not be possible to revive the Association of Fellows so that the Fellows of the College might have a channel for expressing their opinions on this important matter?

I am, Sir, yours faithfully,

Harley-street, W. WILLMOTT EVANS.

SPONTANEOUS RUPTURE OF OVARIAN CYSTS.

To the Editor of THE LANCET.

SIR,—The interesting case recorded in your issue of Feb. 12th by Dr. Robert Jones and Mr. McAdam Eccles of a case of spontaneous rupture of an ovarian cyst recalls to my mind a case that I was called to see some years ago.

When seen on April 30th, 1893, the patient, aged 32 years, was in labour with her fourth child, labour having commenced 18 hours previously. There was a slight contraction of the pelvis necessitating the application of forceps. There was nothing abnormal to be noticed on vaginal examination except the slightly contracted pelvis. I applied the forceps, Mr. R. B. Knowles giving the anæsthetic. As soon as I commenced traction there was a large bulging of the posterior vaginal wall, with a fluctuating swelling which bulged through the vulval orifice. Thinking it was an ovarian cyst, I removed the forceps to get a trocar to puncture the cyst. After getting the trocar and boiling it I returned to the patient's side and found that the swelling had completely disappeared. I asked Mr. Knowles if he had noticed any change in the patient's condition, to which he replied in the negative. I then reapplied the forceps and delivered a full-term, healthy female child, the placenta being expelled a few minutes after. I then examined the patient bimanually but could feel no swelling whatever and nothing abnormal. I then explored the uterine cavity with my hand but could feel nothing abnormal; no tumour or flaccid cyst to be felt. On rectal examination there was nothing to be felt. Waiting till the patient had recovered from the anæsthetic, I again examined her, but could find nothing in the abdomen, no swelling, no dulness, &c., the patient expressing herself as feeling "quite right." There was not the slightest shock and no tenderness on pressure.

Being convinced that it was a case of ruptured ovarian cyst, I warned the husband that one thought she had a ruptured ovarian cyst, due to pressure from the child's head, and although there was no shock or pain, yet in a few hours there might be severe symptoms that might necessitate an operation. On seeing the patient early the next morning, much to my joy, I found she had had some sleep during the night, and had felt no pain or discomfort, beyond a few slight after-pains. She followed a normal course, and would persist in getting up on the fourteenth day. From this date, May 14th, I periodically examined the patient every two or three months, but could find nothing. The following is the entry in my note-book: "May 10th, 1894. Cyst found, right side, size of Tangerine orange; she does not complain of any pain or discomfort; catamenia regular." After this date I examined her every two to three weeks, the cyst gradually filling and getting larger and tenser. On

Nov. 14th, 1894, I operated and removed the cyst entire, it being of about the size of one's two fists. She made an uninterrupted recovery and left the home on Dec. 14th, a month after the operation.

The interest in the case lies in the fact of the cyst rupturing, without the slightest symptom, the quick recovery of the patient, the gradual reappearance of the cyst, its gradual enlargement, and on its removal the plainly marked scar on its anterior surface running diagonally across from left to right. No doubt the patient being anæsthetised when the cyst ruptured prevented shock, but on her recovering from the anæsthetic there was not the slightest sign of anything wrong, no peritoneal irritation, &c., and she nursed the child for six months. She is still alive and well.

I am, Sir, yours faithfully,

Queen's gate, S.W., Feb. 14th, 1910. SIDNEY HARVEY.

THE POOR-LAW MEDICAL SERVICE.

To the Editor of THE LANCET.

SIR,—I should like through the medium of THE LANCET to draw attention to a few crying grievances of the Poor-law infirmary medical officers in London, with at the same time suggestions for their redress. Under present conditions the assistant medical officer is a servant of the infirmary committee of the local guardians, who may or may not get on well with a professional man, but who have naturally, in most instances, very little idea of the actual scope of his work. There is no security of tenure of office, there is understaffing such as would not be tolerated in any other medical service, and the pay is inadequate. The work is exacting if it is to be done properly, the infirmaries being like large general hospitals without their special departments.

There is one safeguard provided, and that is appeal to the Local Government Board, which is an extremely busy department with no time to listen to complaints such as this coming from an individual. The guardians are at present having things their own way and behaving in the most approved demagogic manner. They are kicking efficient men out of the service; they are browbeating others; they are taking to appointing their assistant medical officers for a limited number of years (three is a favourite number). The result will be that when superintendentships in the service become vacant they will fall to the highly trained officers of the fever hospital service and not to the half-trained Poor-law medical officers. This Juggernaut career of the guardians will continue just so long as the medical officers will put up with it.

As we gaze with envy at our more fortunate brethren in the service of the Metropolitan Asylums Board the thought arises that the remedy lies in the organisation of such another board for the control of the Poor-law infirmaries of London. Our most immediate desire is to be delivered out of the hands of the guardians, and this can be done only by a concerted effort on our part. When this was accomplished there could be established a proper infirmary medical service, with security of tenure, promotion, adequate pay and staffing, and a homogeneity that would make for improved work clinically and in research instead of the present guardian-ridden heterogeneous mass of atoms that does not even produce statistics. In other words, a service could be formed to which a man could devote his life, working unhampered by petty spite and wire-pulling.

I am, Sir, yours faithfully,

ALAN RANDLE, M.D. Lond.

St. Marylebone Infirmary, Notting Hill, W., Feb. 21st, 1910.

THE AXIAL NOTATION OF CYLINDRICAL LENSES.

To the Editor of THE LANCET.

SIR,—Mr. Percy Dunn, in the description of his ingenious application of the compass points to the prescription of cylindrical lenses, finds it difficult to understand why the horizontal base-line has been selected as the meridian of departure in the enumeration of angular values. I believe that it was selected by the Optical Standards Committee of the Optical Society as being in accordance with the practice obtaining in every department of applied geometry or physical measurement involving the use of the protractor. The old scale is that of "nasal zeros." There is a horizontal base-line for each eye, but the degree enumeration proceeds for the right eye down and to the right, while in the left eye it is down and to the left. Hence the need of qualifying expressions, such as "down and out," &c.

Mr. Dunn has improved on that because his chart is applicable to either eye, but it is not so good as the Optical Society's since it has a duplicate set of numerals, necessitating qualification. He has, for example, two angles of 30°, and the required one has to be specified N.E. or N.W. The Optical Society's notation reads down and to the left for both eyes. In other words, one has only to apply the present left eye scale of the old style to both eyes to have the new. In this, a meridian of 30° is that and that alone. It needs no specification of eye, direction, or compass bearing. In case-recording that is important, and my view that it is the simplest and best is based on some years of practical use as well as on theoretical considerations.

I am, Sir, yours faithfully,

WILLIAM ETTLES, M.D. Aberd., F.R.C.S. Edin.

Wimpole-street, W., Feb. 19th, 1910.

THE EARLY DIAGNOSIS OF CANCER OF THE STOMACH.

To the Editor of THE LANCET.

SIR,—I am much obliged to Dr. W. Gordon for his complimentary allusions to myself, and for the kind manner in which he tries to explain away the significance of the facts I brought before the Hunterian Society in a lecture which was published in your issue of Feb. 12th. They were very simple. I dealt with only one special class of patients, those suffering from cancer of the stomach. That 60 per cent. of these gave a history such as is ordinarily accepted as diagnostic of pre-existing ulcer of the stomach is a fact. Other observers have found the same, and our conclusions are being confirmed every day by the results of the study of the pathology of the living. Whether a collective investigation of all sorts of gastric cases, unselected, with or without indications for operation, by any number of observers, as recommended by Dr. Gordon, would give a valuable result is a matter for opinion, but it can have no bearing upon this.

Dr. Gordon's illustration of the ophthalmologist is singularly inapposite. There might have been some point in it if I had written a treatise on gastric ulcer, and asserted that cancer was an almost invariable accompaniment of it; but then I did not do this. What I maintain is that cancer in the stomach originates almost always on the site of some unhealed ulcer or irritated scar, as it notoriously does in all other parts of the body; and that now that this site can be seen with a gastroscope there is but one thing to do, and that is remove the point of origin in time. The doctrine is perfectly logical and is in accordance with the facts; but I suppose it will not meet with general acceptance until the lessons of post-mortem pathology are given their true value, and those learnt from timely operation upon the living are appreciated as they deserve to be.

I am, Sir, yours faithfully,

Wimpole-street, W., Feb. 19th, 1910. C. MANSELL MOULLIN.

To the Editor of THE LANCET.

SIR,—Will you allow me to comment on two matters arising out of my paper, read before the Surgical Section of the Royal Society of Medicine and reported in your current issue? In criticising my paper Mr. H. J. Paterson misunderstood my statement about the cause of death I showed that of 127 cases in which the cause of death after gastrectomy had been reported 97 were due to some form of peritonitis, chiefly from leakage. These figures are collected from a number of different surgeons who practise "the improved technique of the present day." It is not a question of what any self-respecting surgeon would dream of doing, but merely an actual narration of what modern surgeons have done.

Dr. W. Gordon writes strongly differing from the views expressed by Mr. Moullin and Mr. Moynihan, who think that a large proportion of cases of cancer of the stomach are preceded by ulcer. A recent very careful paper in the December

number of the *American Journal of Medical Sciences* by Wilson and MacCarty gives very definite facts supporting this view. All the specimens of stomach disease removed by the brothers Mayo for some years past were subjected to thorough pathological investigation. Of these 153 were undoubted carcinoma, and out of this number 109 (71 per cent.) showed definite evidence of previous ulcer. There were in addition 5 cases of ulcer presenting early doubtful malignancy and 11 cases of cancer with doubtful evidence of preceding ulcer. These statements are made very convincing by the large number of illustrations which accompany them, and they fully bear out the modern surgical view that cancer of the stomach is the result of chronic ulceration in the great majority of cases.—I am, Sir, yours faithfully,

ERNEST W. HEY GROVES.

University of Bristol, Feb. 21st, 1910.

THE CONTROL OF INFECTIOUS DISEASES IN ISOLATION HOSPITALS.

To the Editor of THE LANCET.

SIR,—While thanking you for your very fair and impartial criticism of my paper on the control of scarlet fever, may I beg space to mention what I did not perhaps make quite clear—namely, that the method described grew simply out of an attempt to make the best of the conditions which not infrequently arise in growing districts when the population increases more rapidly than the hospital accommodation?

I am, Sir, yours faithfully,

Mortlake, S.W., Feb. 18th, 1910. F. G. CROOKSHANK.

THE PSYCHOLOGY OF POLITICS.

To the Editor of THE LANCET.

SIR,—As the science of medicine expands it comes to embrace the psychological aspect of human events in their normal and abnormal varieties. The mental sides of thought and action become, as Münsterberg shows, a recognition of the "causal" and "purposive" ways of looking on the standpoint from which man is to be considered. The balance of opinion is determined partly by arguments applied to the one side or the other, but there are basic mental trends or temperaments which so affect an adjustment of the scales that it becomes a medical duty to examine the conditions of the psychological causes at work without the least bias on one side or the other. And that this is a medical question arises from the fact that sanitation, eugenics, overcrowding, feeding problems, &c., have an influence on the temperament, whilst the consideration of these influences must help us to arrive at a proper estimate of things as they are, preparatory to undertaking measures which may alter the essential nature of mental states often too hastily criticised because they are not understood.

What makes a man a Tory or a Liberal? Many will think that it is merely a question of environment. They say that a man is Tory because Toryism is his family creed; there is a causal connexion between the two, just as another man is Liberal because Liberalism is the tradition of his stock. But there is more in it than explanation by heredity. Many a man "rats" in turn from one party to the other, and this he may do from conviction that the old lines are too narrow and cramped or that they are too far advanced and destructive. These are the fluctuating members who cause much trouble and heart-burning in the constituencies. Young men are notably inclined to Liberalism; it suits their self-esteem, their pulsating egotism, their urging to be free from the slow methods of old-fogeyism; it seems to offer a life more full of possibilities with greater hope of realisation; and at this period of growth and impulsive enthusiasm it appears to offer the attractions which, though they dimly discern, they eagerly anticipate. What makes Liberalism so attractive to the young is that it connotes discontent with the existing order of things, finding its best exposition in the topsy-turvydom so agreeable to the expectant and dissatisfied mind, a condition often seen in the younger sons of high families, whom the accident of birth has placed at a disadvantage. It matters not that the tenets of the two great sections are changed in "content"; as long as they are opposed he is on the side which by its undefined promises coincides with the limitless horizon of his own aspirations. Beyond and beside all this there is yet some trend which—supposing that the opposing factions are clear and breed true to their tenets and propositions—influences a man to ally himself to one side or the other, and that trend, we venture to think, works through what is known as Temperament, the source of many of the most striking mental differences between individuals and races. Temperament is a complex result determined partly by the influence of the bodily organs upon the mental process and partly by general functional peculiarities of the nervous system, and is not only born in the man but is little alterable by any effort he may make, differing in this respect from Character, which is largely made by his own efforts.

How is it that Scotland and Wales are Liberal, and probably always will be? The Scotch temperament is phlegmatic; the people pride themselves on being "dour," they call themselves "independent," and think that they are as good as anybody. Even at the time when there were kings in Scotland this non-truckle element was prominent and seething. Now the Tory spirit is essentially that of the old aristocratic families—a weight-carrying influence, powerful in the counties, where it has lasted for ages, and it carries with it a large number of people who like to assimilate themselves as much as they can to the upper classes. This is truly a causal relationship, whilst the Liberal policy has more of the purposive character—i.e., the adaptation of means to an end, whether involving consciousness or not. A man who is in a state of action—i.e., of doing something—must always have an end in view, and to select such an end is "purposive." The Conservative mind is satisfied with things as they are; it is what it is because certain things (mostly of an agreeable tone) have combined to make it so; it is therefore causal in essence and is content to dwell in the present, resenting the pushing force of others who would drive it to a state of things perhaps unpleasant to itself and always obscure and doubtful. Liberalism, on the other hand, is of the pushful trend, it traverses the regions of pain rather than of pleasure, and as the progress of purposive action is chiefly connected with the effects of pain it must necessarily appeal most strongly to those whose life is carried on where the circumstances are to a large extent painful in their nature, ambitious perhaps, but downtrodden by old and vested interests; and hence the lower classes and those who have grievances, those whose spirit is aroused against their condition of stagnation and their fancied oppression by the classes which seem to them to be no better than they themselves are, come perforce to be Liberal, they keep before themselves an end to be attained and their conduct is strictly purposive; moreover, it has been so for years, it has become a tradition, and is handed down to their children. The Welsh Liberalism may be traced to the obstinacy engendered by Nonconformist principles against the influence exerted by the Church, which was always associated with the Tory party, aided by the trend of the Celtic temperament. The Church has been connected with the State for a long time; it is supposed to have enjoyed special patronage and facilities, and this combination has had its direct influence upon minds of a different purpose, prompting an opposition to the political party with which the Church has been prominently associated. Now and then a new principle is started by one side or the other of so striking a kind as to counterbalance the force of temperament, and if this is done through the agency of a great leader it may spread through constituencies with all the force of a hypnotic suggestion; but, even so, if the "suggestion" is brought forward by the party from which change and progress are not as a rule expected the antagonism to its reception may cause its failure to succeed owing to the stolid temperaments with which it has to contend, and in any case its acceptance must be a slow and a begrudged one.

The change in the representation of constituencies from time to time is to be explained partly by the shifting of population. People drift into towns from the country, carrying with them their temperaments and ideas which they spread among their fresh surroundings; on the other hand, the population of towns tends to live in the outskirts and in the country, so that both town and county representations change and fluctuate in the most surprising way—the resurrection of new industries bringing along a population of the purposive order

tends to Liberalism. Indeed, considering the larger *pro ratâ* birth-rate among the lower as compared with the middle and upper classes, the progress of Liberalism seems assured, because not only is the temperamental basis there, but it must spread by association and environment. It is difficult to forecast the effect on parties if women ever come to exercise the franchise. The temperaments of women have been for ages so suppressed in action that it is not possible to say more than they must incline to the purposive or Liberal side because of the element of pain which has so long accompanied them. A limited franchise (that of wealth) would certainly lead the members who enjoyed it to Conservatism, but a general franchise would bring them under the influence of their environment, leading to a Liberal trend. There has scarcely yet been time for a due estimate of the force of the female temperament; but with the development of the new era in which women are playing so conspicuous a part the probability is that when consolidated it will augment the Liberal views. Perhaps even when their temperaments do become capable of classification they will be subordinated to the support of that side which offers them the greatest advantages, and this, after all, is a principle which has great weight with the strongest convictions.

There is one form of Temperament which is especially conspicuous in the domain of Irish politics, and that is the nervous form. The chief characteristic of this form is impulsiveness, the tendency to uncertainty, proneness to swing to one side or the other according to predominating influences in the environment. Here the action is distinctly purposive in kind, regarding especially the end to be achieved, and therefore the results must be irregular, never sure nor constant, but essentially unstable and tending to subdivision into factions, swayed by such emotional causes as religion and ideas of freedom. It is always difficult to gauge the direction which this form of temperament will take because it is inherently mercurial, but the trend of it must be towards Liberalism because it has in itself an element of pain; it wants to be free, therefore it prefers to bind itself to no side but to give its balance to that party which promises to be most serviceable for the purposes of the moment.

I am, Sir, yours faithfully,

Feb. 20th, 1910. M.D., F.R.C.P.

THE PUBLIC HEALTH AND THE PARIS FLOODS.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

Paris, Feb. 20th.

AS many towns are liable to suffer from flood, and most towns either actually possess or propose to establish a general system of sewers, the effect of sewers on floods or of floods on sewers becomes a matter of very great interest. In this respect we have in Paris a unique object-lesson on a vast scale; and taught by present experience, Paris at any rate will see that such disasters do not occur again. And now is the moment to investigate the many problems involved.

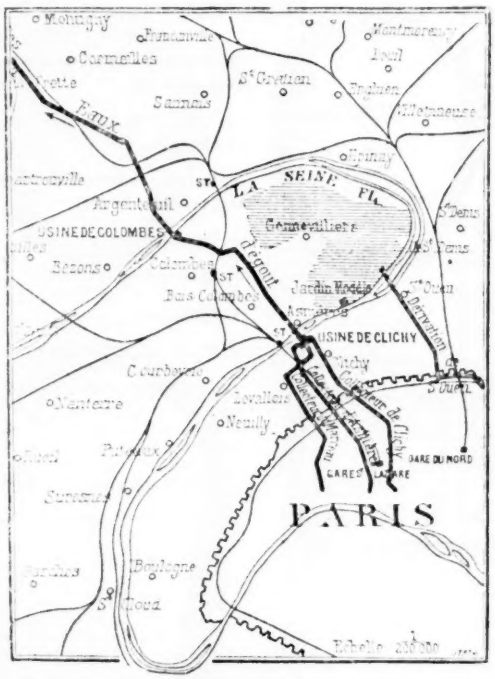
At first there was a general impression that the presence of sewers increased the danger caused by the floods in Paris. There was, in particular, the main collector on the south side of Paris consisting partly of a covered stream called the Bièvre, which was said to have burst and to have flooded the underground railway. This story was related to me by one of the principal officials of the city, and is, I think, widely believed. Following upon this story it became common belief that whenever the pavement gave way and a hole was formed in the street, a sewer had burst. When sewage was found in a cellar again people said the sewer had yielded to the pressure of the flood. To engineers this has always seemed unlikely, and when the partial subsidence of the waters made it possible to see more clearly what had happened it was discovered that the only positive evidence of a burst sewer was in the rue Richepanse, a small street close to the Madeleine. The story of the flooding of the underground railway by the collapse of the Bièvre main sewer, to which allusion has already been made in THE LANCET, arose in a manner which aptly illustrates how stories travel and grow in moments of public excitement and emergency. To build the underground railway station close by the Chamber of Deputies it was necessary to dig down to a minor sewer in the rue de l'Université close to the point where it fell into the Bièvre main collector. Therefore a branch sewer was constructed diverting the rue de l'Université sewer before it reached the site of the future station, and thus it had a new outfall into the Bièvre collector a little higher up. When this was done there was hardly any water in the rue de l'Université sewer, and therefore there was neglect to prevent a possible and unanticipated overflow. On Jan. 21st a storm occurred which caused an exceptional amount of water to rush down the Bièvre sewer and up the new connexion with the rue de l'Université sewer. Here, as a protecting wall had not been built, the water overflowed and invaded the clearings for the railway station. Thus, though the Bièvre main collector did not burst, some of the sewage it contained did overflow into the underground railway. The overflow of the water was checked at once; on the next day, Jan. 22nd, work at the underground station was resumed as usual. At that date no one foresaw the great disaster that was to happen, though the Seine was already 6·30 metres deep at the Pont Royal. It was a week later, Jan. 28th, that the Seine attained its maximum.

During the course of that fatal week the river rose up to and then above the ventilating apertures pierced through the embankment to give air to the underground railway that passes by the river side and connects the new Orleans Station on the Quai d'Orsay with the old Orleans station beyond the Austerlitz bridge. Then it was that the underground railway system was invaded, and the water, some of it from the south side of Paris, passed by the railway tube under the Seine and came bubbling up on the Place du Havre in front of the St. Lazare Station. In confirmation of this version I may say that I have now seen all the plans and technical drawings of the station works and the junction of the rue de l'Université and Bièvre sewers. The matter is obviously of the utmost importance, as it is most essential to know how far sewers are capable of resisting the extraordinary pressure which a great flood may produce. There is only one sewer known to have burst in Paris, and it has not yet been possible to descend into the gaping and flooded aperture of the rue Richepanse to ascertain how and why this accident happened.

The power of resistance of the Paris sewers may have its explanation in their history and construction. When the Universal Exhibition was held in Paris in 1878 the Second International Congress of Hygiene met in the great hall of the Trocadero, and it may be remembered by your readers that a visit to the sewers was organised. In the main sewers there were barges with red velvet cushions so that the lady members of the Congress wearing elegant dresses might have comfortable seats. Scavengers in fancy uniforms pushed the barges along, and the whole scene was brilliantly illuminated by hundreds of gas lights—to-day replaced by electric lights. When Professor de Chaumont, who accompanied the British contingent, travelled through this underground Venice he exclaimed, "This is magnificent, but it is not hygiene." These words were not forgotten and have often been quoted. In a sense the criticism is justified, for the main sewers, especially those running parallel with the river, are so large and have so slight a fall that they are not self-cleansing. Their flow is estimated at only 0·25 to 0·90 metre per second, whereas to carry sand away a velocity of more than 1 metre per second is needed. Therefore a numerous detachment of scavengers, armed with ingenious implements and machinery, is employed to push the mud and sandy deposits along, so that manual labour has to supplement the insufficiency of water power in the drainage of Paris. But, on the other hand, if these sewers are too large for the ordinary volume of sewage and rain-water which they receive, their exaggerated size has rendered them all the more useful in relieving Paris from the terrible water pressure which the floods occasioned. But what has contributed to render the state of affairs worse on the south side of Paris is the fact that the main sewer passes from the southern to the northern side by a syphon under the Seine, and, if the sewers are large, the syphon under the Seine is not so large. The water from the sewers on the south of the river could not flow away more rapidly than the dimensions of the syphon would admit. Consequently a backwash occurred and was more destructive on the south side. When the sewer water was seen coming up the sewer mouths into the

streets or up the soil pipes into the houses some persons imagined that the water of the river had entered the sewers through the various storm overflow openings contrived to relieve over-pressure in the sewers. Had this occurred the sewers would not have helped to lessen the floods, they would have become mere branches of the river. Fortunately, this contingency at least had been foreseen. Every storm overflow is provided with a swinging or suspended valve which, while it allows of the discharge of the drainage, does not permit the water of the river to enter, and when the pressure is from the river towards the sewer then it serves to shut the valve all the more tightly. This was what occurred during the floods, the river closing the storm outfall, so that there was no relief for the sewers though filled to the very top. At the same time, if the sewers were filled they were filled, not with river water, but with the water they were draining away from the flooded districts, and thus they largely contributed to prevent the flood being far more disastrous than was actually the case. (Fig. 1.)

FIG. 1.



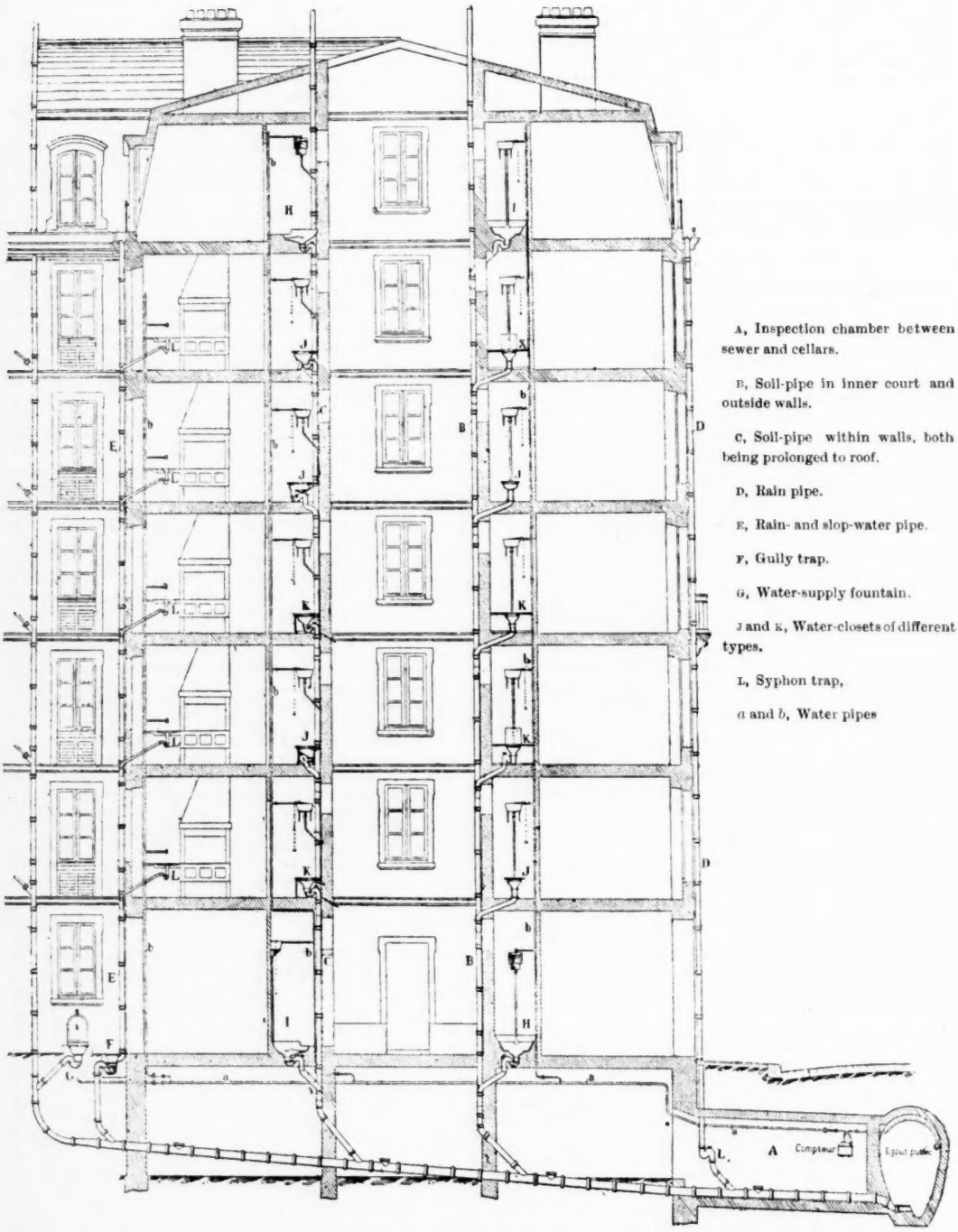
Map of Northern and Western Paris suburbs showing loops made by River Seine in leaving Paris and running through St. Cloud and Clichy. At the Clichy *usine* the three main collectors meet and lift the sewage. The sewage farms are in the shaded area, Gennevilliers, and also farther down stream at Achères and Méry. The Seine concerned in making the great loops fell to 30 metres above the sea at Clichy and Asnières, while it was 34 metres inside Paris.

All who are acquainted with the topography of Paris know how the Seine twists and curves as it approaches, cuts, and leaves Paris. As it passes through Paris it is imprisoned on both sides by high embankments, but once outside the walls this masonry ceases. Then the river can expand and lose in depth what it gains in width. What with this power of expansion and the natural fall in the bed of the river there was a great difference in the level of the Seine by the time it had twisted round Meudon and St. Cloud to travel again towards Paris and reach Asnières and Clichy. Thus on the Eastern side of Paris at the Pont d'Austerlitz the water reached the level of 34·84 metres above the level of the sea. In the centre of Paris at the Pont Royal by the Tuileries the water was at 34·02 metres above the sea. In the district on the south side of the river, the Quai d'Orsay and neighbouring thoroughfares, the level of the street is only from 31 to 32 metres above the level of the sea. The levels of the Rue du Bac, which was so badly inundated, vary from 32·83 to 32·85 metres above the sea. There are many parts of Paris on the northern side which are also much below the level of 34 metres which the Seine surpassed when passing through Paris. Fortunately, even when this maximum was reached the level of the water was never higher at Clichy than from 30 to 30·40 metres above the sea. This fact is the more important as it is at Clichy that the three great main sewers of the Paris system unite. Here there is a gigantic pumping station which lifts up the sewage to a sufficiently high level for it to flow on by gravitation to the sewage farms and irrigation fields of Gennevilliers, Achères, and Méry. These sewage farms, however, and especially at Gennevilliers, were themselves flooded; but, in any case, this system of disposing of the sewage could not be continued because the pumping station was also flooded and the engines stopped. Therefore, the sewers had to be allowed to flow direct into the river at Clichy.

When we consider the enormous dilution that has taken place there is no reason to entertain many fears in regard to either the sewer water or the river water. It is true that the river has received not only sewage but a considerable quantity of household refuse and garbage. This could not be taken to the dust heaps and dust-sorting depôts outside the walls because they were flooded. The hardest and safest materials, such as broken pots and pans, were taken just beyond the fortifications to non-flooded districts, but what we call in England the "soft core" was thrown into the river. This was done at first from the Pont Tolbiac which, being at the entrance of Paris, was a very bad place to chose. Afterwards this was thrown into the river from the Point du Jour bridge on the other side of the city, and just where the river passes through the fortifications and out of Paris. In regard to sewage, the average or normal amount conveyed by the Paris sewers is set down at 400,000 cubic metres per day. The actual daily production of urine and fæcal matter in Paris does not amount to more than about 3000 cubic metres. Thus the soil or crude sewage should be diluted by 133 times its volume while within the sewers, if it only consisted of the daily produce, but with the overflowing of cesspools and the breaking of soil pipes there would be at first in the sewers more than the normal amount of human excrementitious matter. On the other hand, the actual amount of water that flowed out of the sewers of Paris during the height of the floods varied from 30,000,000 to 40,000,000 cubic metres per day. This, then, is a dilution of the normal production of human dejections by from 10,000 to 13,333 times its volume of water. These sewers had their outfall into the river, and the flow of water in the Seine at the height of the flood is put down as 270,000,000 cubic metres in 24 hours. Adding to this the water that passed through the sewers we get a grand total of 300,000,000, which would dilute the 3000 cubic metres of urine and fæcal matter in a hundred thousand times its volume of water. So far as safety depends on the amount of dilution of dangerous matter and the rapidity of dispersal, then the waters of the Seine must be fairly pure at the present moment.

To return to the service rendered by the sewers, the question arises why all the parts of Paris that are below the level of 34 metres were not inundated. The neighbourhood of the Place du Havre, in front of the St. Lazare station, is at the level of 32 metres, and here for a while the water was above the street, but this was due, as has been said, to the extra supply that came up to this spot by the underground railway from the southern side of the river. But the flood should have extended from the river, not merely up the Avenue Montaigne and over a part of the Champs Elysées, but from the Rond Point of the Champs Elysées over to the Boulevard Haussmann, on by the St. Lazare station to the Trinity Church, and further on to Notre Dame de Lorette. All districts south of this half circle, including a good part of the grand Boulevards, the rue de Rivoli, the Tuileries, and the Louvre, should have been flooded with four, five, and even six feet depth of water in the street, inasmuch as all these districts remained a couple of metres lower than the height attained by the waters of the Seine. It would seem that this was, in a measure at least, prevented by the fact that the Seine at Clichy was at 30 metres, or two metres lower still, and therefore the sewers could by gravitation drain the flooded

FIG. 3.



A, Inspection chamber between sewer and cellars.

B, Soil-pipe in inner court and outside walls.

C, Soil-pipe within walls, both being prolonged to roof.

D, Rain pipe.

E, Rain- and slop-water pipe.

F, Gully trap.

G, Water-supply fountain.

J and K, Water-closets of different types.

L, Syphon trap,

a and *b*, Water pipes

Drainage scheme of typical Paris house. Out of 80,000 houses 45,000 are drained in this direct manner. Observe that A, the chamber between the cellars and the *égout public*, is separated from the sewer by the wall. It contains gas, water, and soil pipes. It was the horizontal soil-pipe in the cellars which failed to resist the pressure when the sewers were over-full.

districts. This they were able to do because of their huge proportions, and because the waters of the floods had no great difficulty in reaching the sewers. If the water was in the street then it could follow the course of the gutters and fall into the sewer by the ordinary sewer mouths. But before reaching the streets the cellars were inundated and there a considerable number of soil pipes burst. Though the sewers built of solid masonry resisted the pressure the soil pipes within the houses are but frail structures. To give the soil pipe a good fall as it passes from the back to the front of the house a portion of it is above ground and suspended to the wall of the cellar. It is, therefore, not strengthened by any surrounding earth and the joints are often somewhat carelessly cemented. Then, and even when the joints held good, it sometimes happened that the lids covering the inspection holes were not securely fastened down. Thus when the water from the over-charged sewers forced its way up these domestic drains

FIG. 2A.

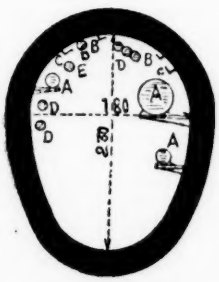


FIG. 2B.

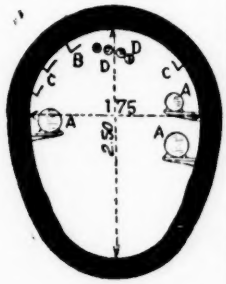


FIG. 2C.

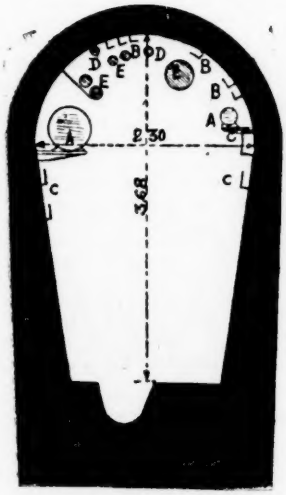


FIG. 2D.

2A, Rue de Bourgogne sewer.

2B, Place de l'Hôtel de Ville sewer.

2C, Place de la Madeleine sewer.

2D, Rue du Louvre sewer.

Types of special Paris sewers and their contents. A, Water mains. B, Telegraph wires. C, Telephone wires. D, Pneumatic postal tubes. E, Compressed-air tubes.

many of them were unable to resist the pressure. Yet the fact that some of them gave way probably did more good than harm. The amount of soil that thus reached the cellars would be very small if the house drains were properly flushed. On the other hand, the fact that these soil pipes broke in the cellars—that is to say, at a level considerably below the streets—converted them into very useful drain pipes which helped the underground waters to flow into the sewers and thus right on to the outfall at Clichy.

It is a peculiarity of the present situation that everything that was a vice in normal times becomes a virtue to-day. A sewer should be water-tight, and an underground passage or tunnel dry and free from damp, but now that the soil itself is water-logged a broken soil pipe is even welcomed as a means of draining off some of this terrible accumulation of water. Then, though the sewers have always been criticised as being too large, the only regret expressed to-day is that they were not larger still. Yet the great Clichy main collector has a culvert 2·90 metres deep and 4 metres wide, while on each side there is a pathway almost a metre wide. In normal times the culvert alone contains water. On each side of the pathways—they might almost be called quays—are suspended from the domed roof and sides a great number of pipes. The most important of these is the water main. Other pipes contain telephone wires and telegraph wires; then there is the pneumatic post pipe, and another pipe which supplies air under pressure used as a motive power in small workshops. This domed portion of the Clichy main collector is 6 metres wide and 3 metres high. The other main collectors, diagrams of which will be seen at Fig. 2, only differ slightly in shape and size from the Clichy main. The introduction of so many services in the sewers adds to the revenue of the town and prevents the digging up of the streets to get access to a wire or a pipe.

The system is very convenient so long as only the culvert of the sewer is full, but in the present case these sewers, in spite of their size, were flooded right up to their domed roofs, so full indeed that the pressure from within was equal to 10 metres. Consequently all the other services were compromised and the very greatest alarm was felt in regard to the water-supply. If the sewers burst, the water pipes within the sewers would be torn asunder. The water-supply would cease wherever the water pipe was broken, and if it continued elsewhere it would be mixed with the sewage from the sewer. Some of the electric services were interrupted, but this was not because the sewers burst but because the electric works were inundated and the machinery stopped. From the first, the engineers have insisted that so long as the water-supply came to the houses the sewers had withstood the pressure of the floods. The water-supply has never been interrupted, therefore there has been no admixture with it of the waters of the Paris floods. On Jan. 21st last, before the floods had attained the maximum height, the drinking-water supply was rather muddy. This was due to excessive rains on the gathering grounds, but the neighbouring populations were enjoying exceptionally good health. So also are the inhabitants of Paris; the death-rate and sick-rate are below the average. Throughout the whole of the inundated districts of Paris there are only 17 cases of typhoid fever, and they are carefully watched to prevent the dejections being thrown into the sewer or river without thorough disinfection. Thus there is no special reason to fear that an epidemic may be caused through the contamination of the water-supply. It seems a strange thing to say, but Paris must be congratulated on the fact that its water-supply has been well protected by its sewers. The sewers also, by draining the town, have saved some districts from the inundation, and such drainage was possible because of the great and extraordinary difference of some 4 metres in the level of the Seine inside Paris and just outside the city at Clichy, where the general sewer outfall is situated.

I append a sketch (Fig. 3) of the drainage scheme of a typical Paris house.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The Health of the City.

THE death-rate during 1909 reached a lower figure than had ever been recorded before in the city. It was 15·5 per 1000, against 15·9 in 1908, 16·1 in 1907, and 16·8 in 1906. The average death-rate during the last five years was 16·1, as compared with 19 1 in the previous five years. This diminished mortality represents a saving of about 1650 lives per annum. The reduction which has been going on in the birth-rate during the last ten years continued in a marked degree during last year, the birth-rate being 26·7, or 1·7 per 1000 below the rate for 1908. The rate of infantile mortality was also lower than in any previous year. It was 135 per 1000 births, against an average of 170 in the preceding ten years. The lowest rate previously recorded was 145 in 1908. This lower rate was no doubt partly due to the favourable weather during the greater part of the summer, but much of the improvement must be attributed to the work of the health visitors amongst the infants born in the poorer parts of the city. The deaths from the principal

zymotic diseases as compared with the average for the previous ten years were:—

	Deaths in 1909.	Average 1899-1908.
Small-pox	0	2
Measles	527	207
Scarlet fever	106	106
Diphtheria	89	108
Whooping-cough	152	243
Typhoid fever	22	79
Diarrhœa	244	622

The high mortality of measles was due to a severe epidemic in the early months of the year. There was an increase in the number of cases of scarlet fever, but no increase in the number of deaths. A pleasing feature of the records is the small number of both cases and deaths due to typhoid fever. Only 95 cases were notified against an average of 423, and 22 deaths against 79. There were 751 deaths from phthisis and 163 from other forms of tubercular disease, a decrease of 36 and 81 respectively below the decennial average.

Tuberculosis and the Milk-supply.

The scheme for securing a tubercle-free milk-supply is being actively proceeded with. Dairy farms are being induced voluntarily to adopt measures to eliminate gradually tuberculosis from dairy herds. The scheme is restricted in application to herds within ten miles of the city, the milk from which is supplied to Birmingham. In answer to a circular letter from Dr. John Robertson, the medical officer of health, 20 farmers applied to have their dairy herds tested. In 16 instances the request was complied with. In the four instances declined the refusal was due in one instance to the farm being outside the area, in two instances to the milk not being sold in the city, and in one instance to the sheds being unsuitable. In the last case the sheds are being improved. As a result tuberculosis has been eliminated from eight herds, which are now being maintained free, only non-tuberculous stock being purchased. The milk from these dairies is supplied mainly to public institutions. Five herds are in the course of being freed. In three instances, owing to the high percentage of tuberculous cows, the farmers have declined after the first test to proceed further for the present. Altogether 803 cows have been tested, of which 567 were found to be unaffected and 236 were rejected. The cost of the work has so far amounted to £67 16*s.* 5*d.*

Salterley Grange Sanatorium.

The first patients were admitted to the municipal sanatorium on Jan. 7th, 1909, and until the end of the year 76 patients were received. A larger number would have been taken if it had not been for a difficulty in the water-supply which is now remedied. The applicants for admission are examined by Dr. J. D. Stanley, and in the year 256 patients were examined, of whom 177 were declined as unlikely to benefit sufficiently from treatment. 46 of these have died—a figure which clearly shows the need for examination. The 76 patients admitted comprised 40 males and 36 females, all but two being between the ages of 15 and 40 years. 48 patients were discharged after an average stay of 118 days for the males and 109 for the females. Four left soon after admission; of the remaining 44, 17 had the disease completely arrested, 18 were much improved, 5 were improved, and only 4 showed no improvement. On Jan. 13th last 35 of the discharged patients were examined by Dr. Stanley. The majority were in regular employment and maintaining their health, but a few had found it impossible to obtain work, and the lack of employment and sufficient nutrition had prejudiced their health. The question of the after-care of discharged patients formed the subject of a conference between the health committee, the board of guardians, the City Aid Society and Charity Organisation Society, and much assistance is being rendered.

The University.

The report of the Principal (Sir Oliver Lodge) states that the registered students last session numbered 984, of whom 565 had matriculated. The latter were distributed among the faculties as follows: science, 245; arts, 215; commerce, 30; and medicine, 75. The number of medical students shows an increase of 9 over the previous year, but a decrease as compared with 1904–05, when the number was 92. Until 1903 the medical faculty contained the largest number of matriculated students, but the steady growth of the arts faculty, and still more of the science faculty with its large technical departments, has made medicine take the third place. The financial statement for the year shows that the income amounted to £48,981 11*s.* 1*d.*, as compared with £47,330 2*s.* 3*d.* in the previous year. The bacteriological department contributed £1092 19*s.* 8*d.* towards this income. The expenditure amounted to £56,206 15*s.*, as compared with £52,264 2*s.* 10*d.* the previous year. An appeal for funds during the year resulted in promises amounting to £78,493. Included in this was a generous donation of £30,000 from Sir Charles Holcroft, whose contributions now amount to the munificent sum of £100,000. Mr. Charles MacMunn of Wolverhampton has recently presented to the University 17 Peruvian Indian mummy heads and skulls, together with two complete mummies of children in the original wrappings of coloured cloths. There are also an eating bowl and toy. These remains are of the Inca tribe and are supposed to be about 2000 years old.

Mine Rescue Station.

An exhibition of rescue apparatus with demonstrations of their use will be held in the University from Feb. 22nd to 26th inclusive. A subcommittee, under the direction of Professor Cadman, has been appointed to carry out tests under actual working conditions of all known forms of rescue apparatus. It has been decided to establish a principal rescue station at the University with branches scattered over the Midland colliery districts.

Moseley Convalescent Home for Children.

The number of children admitted last year was 976, an increase of 22 over the previous year. Of the 976 children 508 were admitted on the recommendation of subscribers, 155 were transferred from the Children's Hospital, and 313 from the General, Queen's, Orthopædic, and other hospitals, the district nursing societies, the dispensaries and churches of the city and district. The home has established itself, not only as a place to which delicate children can be sent, but also as a continuation hospital for children in the early stages of convalescence after serious and acute illnesses. The year's income amounted to £2140 and the expenditure to £2352, leaving a deficiency of £212, which is less than in previous years.

Health of Solihull.

Dr. C. E. Tangye in his annual report states that the birth-rate was 20·1 per 1000, which is 1·4 below the average for the previous ten years, and was equal to 1907, the lowest rate on record. The death rate, 13 1, was slightly lower than for the previous year, but was higher than the average for the ten years. The infantile death-rate was the fairly low one of 75 per 1000 births. There had been 14 deaths from zymotic disease, the rate being 0·81. 18 cases of tuberculosis in poor persons were reported, of which 13 were occupants of the workhouse. In the case where the patients continued to live at home advice was given on such points as the disposal of sputum, and fresh air. Where removal or death occurred it was proposed to disinfect the premises vacated.

Feb. 21st.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Death from Anthrax in Liverpool.

THE city coroner held an inquest last week concerning the death of a dock-labourer residing in Liverpool. The evidence showed that the firm employing the deceased received large consignments of hides, skins, and wool for transhipment. It was known that anthrax was likely to be carried in these goods. Consequently gloves were supplied to all the men having anything to do with the goods, both on the quay and on the ship. A man was not allowed to work amongst this class of goods if he was found to have a scratch or open sore about him. On Jan. 27th and 28th the steamer *Devonian* was lying at the north side of No. 1 Huskisson Dock, loading cargo. On the 28th the deceased was working in one of the holds, stowing sheep and goat skins, buffalo hides, and wool. The hides and skins were all dry. He wore gloves and the witness did not notice any sores about him. A fellow lodger described the deceased as a healthy man. He returned from his work on Wednesday,

Feb. 2nd, complaining of stiffness about the head, shoulders, and back. On the next morning a small pimple made its appearance on one side of his jaw. On the following Saturday, Feb. 5th, he proceeded to the David Lewis Northern Hospital, when the house surgeon on duty suspected anthrax. He was then admitted to the hospital as an in-patient, where he died on the following Monday, Feb. 7th. The medical evidence was to the effect that the deceased's death was due to blood poisoning following anthrax, and the jury returned a verdict accordingly. Mr. Eva attended the inquiry on behalf of the Home Office.

Liverpool School of Tropical Medicine: the Mary Kingsley Medal: The New Chairman.

The Mary Kingsley medal of the Liverpool School of Tropical Medicine is awarded to two classes of individuals who have done work in this connexion—namely, to those who have advanced the cause by administrative efforts, and those who have advanced it, not less, by scientific researches. The award of the medal for 1909 has been made to the following:—(1) To Mrs. Pinnock, in recognition of the services rendered to the cause of tropical medicine and sanitation by her brother, the late Sir Alfred Jones, founder and first chairman of the school; (2) to Mr. William Adamson and Dr. William Carter, for the assistance they rendered in the foundation of the school; (3) to Prince Auguste d'Arenberg, President of the Suez Canal Company, for his campaign against malaria at Ismailia; (4) to Sir William McGregor, G.C.M.G., the new Governor of Queensland, for his services on sanitation and to tropical medicine while Governor of Lagos; (5) to Surgeon-General Walter Wyman, the head of the Marine Hospital Service of the United States of America, for the fine organisation which he has given to the service under him and for the manner in which he has always supported scientific principles in the matter of public sanitation; (6) to Sir Alfred Keogh, recently the Director-General of the Army Medical Service, for the fine organisation which he has given to the service under him, and for the manner in which he has always supported scientific principles in the matter of public sanitation. The following have been awarded the medal for valuable contributions to the scientific and educational side of tropical medicine: (1) Professor R Blanchard of Paris, for his services to medical entomology and parasitology; (2) Dr. Anton Breinl, recently the director of the research laboratories of the school at Runcorn, and now director of the Tropical Diseases Institute in Queensland, for the services which he rendered to the school during his connexion with it; (3) Professor Angelo Celli of Rome, for his long studies of malaria and other parasitic diseases in Italy, and for the campaign against malaria which he has led during the last ten years; (4) Dr. C. W. Daniels, the director of the London School of Tropical Medicine, for his services to scientific research and to the cause of education in tropical medicine; (5) Colonel W. G. King, I.M.S., for his sanitary labours in the Southern Presidency of India and for his efforts regarding the foundation of the King's Institute at Madras; (6) Professor Nocht, the director of the Hamburg School of Tropical Medicine, for his services to scientific research and to the cause of education in tropical medicine; (7) Professor G. H. F. Nuttall, Quick professor of parasitology at the University of Cambridge and external examiner in tropical medicine to the University of Liverpool, for his researches in parasitology; (8) Major Leonard Rogers, I.M.S., for his researches in every department of tropical medicine for the last 15 years; and (9) Professor J. L. Todd, associate professor of parasitology at McGill University, for the services which he rendered to the Liverpool school during his connexion with it. —The School of Tropical Medicine has made a wise selection in the choice of a successor to the late lamented chairman, Sir Alfred Jones, who so worthily filled the post for so many years. By the appointment of Mr. W. H. Lever to fill the vacancy the school has secured an active chairman and one who will carry great weight with the city, and will do much to help the prosperity of the school. It would be difficult to find a successor who could so nearly fill the place left vacant by the death of the late chairman.

The Annual Meetings of the Hospital for Women, Shaw-street, and the Liverpool Dental Hospital.

At the annual meeting of the Hospital for Women held on Feb. 10th under the presidency of the Lord Mayor, a strong appeal was made for increased financial support, the deficit amounting to £545. Sir Charles Petrie suggested that, as the present institution was altogether inadequate to accommodate all applying for relief, the committee should seriously consider the advisability of establishing a new hospital. The forty-ninth annual meeting of the subscribers to the Liverpool Dental Hospital was held on the same date at the Town-hall, the Lord Mayor presiding. Special interest attached to the proceedings owing to the expected early opening of the new hospital in Pembroke-place, and to the expansion of the valuable work of the institution consequent on the Act dealing with the medical inspection of children.

Feb. 22nd.

WALES.

(FROM OUR OWN CORRESPONDENT.)

The Sanitary Condition of Collieries.

SOME uneasiness has been caused in the colliery districts of South Wales and Monmouthshire as to the part which may be taken in the spread of infectious disease by the underground workings of the collieries. At a meeting of the Ebbw Vale urban district council on Feb. 15th Mr. J. W. Davies, the medical officer of health, reported upon the circumstances connected with the death last year from "farcy" of a haulier who had been employed underground in one of the local collieries. Other deaths had also occurred amongst colliers working in the district which the medical officer of health suspected might have been due to the surroundings amidst which they worked. It is to be regretted that the colliery company did not accede to the request which was made for permission to make suitable investigations underground. The refusal is all the more unfortunate in view of Mr. Davies's statement that he was compelled to give credence to the views current amongst the workmen which pointed to the probability that the sanitary conditions prevailing underground were not of an altogether satisfactory nature. In the Industrial Hygiene Section of the Health Congress held in Leeds last July a discussion took place upon the sanitation of mines, in the course of which it was suggested that there should be a sanitary scavenger appointed to each colliery, whose duty it would be to see that human dejecta were rendered innocuous. In spite of the absence from the underground workings of the collieries of any systematised sanitary arrangements, it is remarkable that the spread of typhoid fever is rarely, if ever, attributed to this circumstance. During the past few years outbreaks of this disease in colliery districts have been investigated in many coal-mining districts by the medical inspectors of the Local Government Board, but no reference has been made by them to insanitary workings. In the Rhondda valleys typhoid fever has at times been very prevalent, but only on one occasion, some 11 or 12 years ago, has there been any connexion between the outbreak and a colliery, and in that instance the infection was shown to be spread through several colliers drinking water from a horse trough underground, which received a supply of water through pipes from a stream above ground which flowed under a privy receiving the discharges from a typhoid patient.

Cardiff Infirmary.

The report of the work carried on during 1909 in the Cardiff Infirmary, which was presented to the annual meeting of governors on Feb. 23rd, may be considered as fairly satisfactory in spite of the fact that the income of nearly £14,000 was less by £3700 than the expenditure. The inhabitants of Cardiff have a way of responding generously to appeals for really deserving objects, and they may be depended upon to wipe out the adverse balances of the past few years when the necessity arises. There were in the infirmary during 1909 on an average 172 patients daily, and the average cost per bed was £71. The average daily cost per head for patients and staff for provisions was slightly over 10*d.*, showing that there must be a constant supervision over the expenditure. The accommodation in the institution has now been increased from 187 to 196 beds, and during the year 2431 patients were received into the wards.

Cardiff Medical School.

The grant of £1500 yearly which was allocated last autumn

by the Treasury to the Cardiff Medical School is to be spent in increasing the salaries of some of the present professors, in the appointment of professors of pathology and bacteriology, and in additional lectureships.

Feb. 23rd.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The Annual Dinner of the Edinburgh Royal Medical Society.

THE annual dinner of the Edinburgh Royal Medical Society was held on the evening of Tuesday, Feb. 15th, in the hall of the society. The chair was occupied by the senior President, Dr. J. Maxwell Ross. The guest of the evening was Sir T. Lauder Brunton, whose health was proposed by the President. Sir Lauder Brunton mentioned the fact that it was 43 years ago that he occupied the chair at the annual dinner of the society. He spoke of the society having led him to speak and to write on medical topics. He said he had one great rule as a student, he never worked on Sunday and he never worked at anything after 11 o'clock at night. He then spoke at some length of the revolution which had taken place in medicine and surgery in the 43 years since he was president of the society. Their knowledge of the functions of the nervous system and of the processes in digestion had all been acquired since then. Their methods of diagnosis were quite different now. In the whole of Scotland then there were probably only two clinical thermometers and they were in use in the clinical wards in the infirmary; they were 2 feet long and took ten minutes to give the temperature. Other toasts followed.

Edinburgh and St. Andrews Universities Election.

The counting of the votes for Edinburgh and St. Andrews Universities Parliamentary election gave Sir Robert Finlay a total majority in the joint constituency of 2512.

Recent Appointments in Edinburgh.

Owing to the promotion of Mr. Alexander Miles to the position of full surgeon to the Edinburgh Royal Infirmary with charge of wards, a vacancy occurred on the staff of assistant surgeons. For this junior post Mr. E. W. Scott Carmichael, F.R.C.S. Edin., assistant surgeon at the Royal Hospital for Sick Children, was selected by the infirmary managers. A vacancy has also occurred at Leith Hospital owing to Mr. Miles's resignation of that post; he has been succeeded by the assistant surgeon, Mr. J. W. Struthers, F.R.C.S. Edin., and the assistant surgeoncy has been given to Mr. David P. D. Wilkie, F.R.C.S. Edin.

Payment for Attendance on Street Accidents.

As a result of a conference between the Glasgow and West of Scotland branch of the British Medical Association and the Watching and Lighting Committee of the corporation of Glasgow, an understanding has been arrived at regarding payment for attendance on streets accidents. The corporation has agreed: (1) to pay a uniform fee of 5*s.* to medical practitioners for their services in street accidents; (2) to instruct members of the police force to report to their district superintendents the occurrence on their beats of any street accidents in which they have called in the services of a medical practitioner, and that a report of such accidents be, after the usual inquiry, made by the chief constable to them; and (3) to request the members of the medical profession to intimate to a constable the occurrence of any other accidents and the particulars of their attendance on the person or persons injured, wherever such person or persons are unable to pay the fees.

Glasgow University Men in England.

At the County Hotel, Newcastle-on-Tyne, the annual dinner of the North of England Glasgow University Club took place recently, and was attended by a large and distinguished gathering. Dr. Frank Russell of Newcastle presided, and the guests of the evening were Mr. John Cleland, M.D. Edin., LL.D., F.R.S., emeritus professor of anatomy in Glasgow University, and Mr. William Jack, M.A., LL.D., emeritus professor of mathematics in Glasgow University.

The New Infirmary for Perth.

The annual meeting of subscribers to the City and County of Perth Royal Infirmary was held in the City Chambers, Perth, on Feb. 14th. The recommendation of the directors to erect a new infirmary at a cost of £36,000 at Tullyhand was approved. For this purpose 11 acres have been feued from the Glover Incorporation at £15 per acre. The sketch plans show a new infirmary consisting of four main ward blocks, each two storeys in height, with administrative departments in the centre, dispensary, isolation blocks, &c. There is provision for 100 patients, and the estimated cost is £36,190, to meet which there is a fund of £31,783 available, leaving £4407 to be subscribed. Mr. James Miller, A.R.S.A., Glasgow, was appointed architect of the new infirmary.

Forfar Infirmary Improvements.

A meeting of the directors of Forfar Infirmary was held on Feb. 16th. A report on the plans and estimates for the improvements at the infirmary was submitted. It was stated that up to the present something like £440 had been collected in subscriptions towards the estimated cost of £950. It was agreed to get in estimates and hold a special meeting of the directors three weeks hence.

Death of Dr. Andrew Key of Montrose.

Dr. Andrew Key died at Montrose on Feb. 18th. The deceased gentleman was a graduate of Edinburgh University and had been in practice in Montrose since 1871. He was one of the oldest medical practitioners in Forfarshire and was highly respected by all his professional colleagues throughout the county. He was factory medical officer for Montrose, medical officer for Rossie Reformatory, and honorary consulting surgeon at Montrose Infirmary. His wife died only a fortnight ago.

Feb. 22nd.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The National Maternity Hospital: Annual Meeting.

THE annual general meeting of the governors and supporters of the National Maternity Hospital, Dublin, was held last week in the Mansion House. The chair was occupied by the Most Rev. Dr. Donnelly, Catholic Bishop of Canea. The annual report of the institution was read by the Master, Mr. A. J. Horne, President of the Royal College of Physicians of Ireland. Reference was made therein to the vacancies that had occurred in the Masterships during the past year, which resulted in the unanimous re-election of Mr. Horne and Mr. R. J. White for a period of ten years. A tribute of deep regret was paid to the memory of Mrs. McArdle, who had for many years filled the post of honorary secretary to the hospital, and of profound sympathy with her bereaved husband, Mr. John S. McArdle, senior surgeon of St. Vincent's Hospital, and a special minute had been made by the board expressing its feeling on the occasion. Both the intern and the extern work of the hospital had been well maintained during the year; so also had been that of the dispensary, in which 4430 patients had been treated. The over-draft at the bank still remains very considerable, and the board made an urgent appeal for the financial assistance necessary to enable it to carry on its beneficent work. The medical report showed that during the year ending March 31st, 1909, the total number of admissions to the wards was 872; of these, 772 were to the maternity wards and 100 to the gynæcological. The number of deaths had been only 3. The new operation theatre, which had been furnished and fully equipped, gave the much-needed facilities to the surgical staff for carrying out the increasing number of operations which they were called upon to perform. Their share of the hospital work had been carried out by the nursing staff in a most satisfactory manner. In the extern maternity department 1048 cases had been attended by the medical officers and nurses of the institution. Over 10,000 visits had been paid by the nurses to poor patients at their homes.

Milk Adulteration: A "Country" Firm Sued.

A lawsuit of unusual type based upon milk adulteration was brought into the Nisi Prius Court last week. The evidence which had been elicited in the case went to show that the proverbial "doctoring" of our Dublin milk is a process not unknown even in country towns and country villages. The action had been brought by James O'Keefe,

74, Blessington-street, Dublin, for the recovery of £500 damages in respect of the sale of buttermilk. The plaintiff was a wholesale dealer in milk, and had purchased large quantities of milk from the defendants, the Western Creamery Co., Limited, who carried on business in Longford and elsewhere. They had delivered the milk to the plaintiff, who had in turn sold it to various customers, and several persons to whom it had been sold for retail purposes were fined for its being diluted with an excessive percentage of water. The defences made had traversed all the plaintiff's claims, and issue was joined as it was expected that the case would be tried by a special jury. A consent had, however, been agreed to, the terms of which provided that a sum of £20 and all costs were to be paid by the defendants to the plaintiff in full satisfaction of all his claims, and that the consent be made a rule of court. Plaintiff's counsel accordingly appeared for the purpose of asking for their client that an order be made in accordance with these terms. On hearing the particulars the judge received the consent settling the action and made it a rule of court. This action can hardly fail to have a salutary influence on the milk traffic, of which the nefarious abuse has long constituted one of the very worst physical ills of life in our larger Irish towns and cities.

Killarney Rural Council: Dairies, Cowsheds, and Milkshops Order.

One of the special difficulties which have been experienced by Irish councils in carrying into operation the Dairies, Cowsheds, and Milkshops Order is that connected with the amount of the salary to be offered to the veterinary inspector to be appointed for the purpose of fulfilling its requirements. The sum which has hitherto been offered has always been a moderate one, but varies with the extent of the district in question and the character of the locality as a dairying area. The Killarney rural council recently advertised the vacant position in its own district, offering an annual stipend of £15. It was stated, too, that this was the amount given to the inspector in the Tralee district. There were, however, no applicants for the position in the picturesque Killarney district, with the result that the Local Government Board, having been made acquainted with all the circumstances, has informed the council that, having regard to the great extent of the district, the salary appears to be insufficient, and that accordingly another advertisement offering a salary likely to attract efficient candidates should be forthwith issued. The question is to be considered at a future meeting of the Killarney rural council. Meantime the publication of these particulars has elicited a good deal of comment from medical inspectors and officers of health throughout all parts of the country, who are agreed that their own claims and representations have rarely, if ever, received so sympathetic consideration.

Ballymoney Nursing Association.

At the fourth annual meeting of the Ballymoney Nursing Association, held on Feb. 16th, at which members of all the religious denominations were present, a very satisfactory report was presented, with the exception of a slight diminution in subscriptions. A workhouse porter by his will has left the association a donation of £50.

Operations in Irish Workhouse Infirmaries.

At the weekly meeting of the Lurgan board of guardians, held on Feb. 18th, Dr. J. S. Darling presented an interesting report giving particulars of 205 operations performed in the infirmary during the past year. He urged the necessity of the provision of a maternity ward and of a room where patients could be located after serious operations, instead of in a general ward as at present. A guardian drew attention to the fact that the money paid for outside medical assistance was steadily increasing, and said that last year the amount was larger than it had been in the memory of the oldest member of the board. Another guardian, pointing out that out of the 205 operations there had been only 10 fatalities, thought with such results the money had not been lost. Dr. Darling being sent for, explained that no extra medical assistance from outside had been requisitioned, except when absolutely essential. He showed that many of the operations were the most serious that were performed in any hospital, and if not performed there the guardians would be paying from 1 to 2 guineas per week for many weeks together and sometimes months, as other boards had to do, for treatment of patients in the Royal Victoria Hospital, Belfast, so that the cost would be infinitely more to them, to take no account of the expense to the friends of the patients going to visit them. He had outside assistance in only 58 cases during the year, and if there had been no resident medical officer in the house the guardians would have had to pay at least 100 guineas for an anæsthetist. He thought the poor were getting ample value for any expense; he never called in medical aid unless he could not do without it, but he would always put the interests of patients first. He protested against these constant strictures of the guardians, as if he was anxious to put them to expense. They should remember that they had a large community to deal with, a population of 35,000 people, including two large manufacturing centres (the towns of Lurgan and Portadown), where naturally the workers were subject to many diseases and injuries, and they should bear in mind that he did the best he could for each patient. After a protracted discussion, the chairman of the board of guardians assured Dr. Darling that the members of the board had the utmost confidence in him, and knew that in every instance he did what was best in the interests of the patients. The medical profession in the Poor-law service in the North of Ireland are greatly indebted to Dr. Darling for the dignified position he has taken in this matter. It is to be hoped that the medical officers of other workhouse infirmaries will try to educate, as well as he is doing, their boards of guardians as to their responsibilities to the sick poor of whom they have charge.

The Samaritan Hospital, Belfast.

At the annual meeting of the friends of the Samaritan Hospital, Belfast, held on Feb. 21st, it was reported that during the year 1909 there had been 692 patients in the extern department and 201 in the wards, of whom 153 required operation, of which 56 were major in character. Financially, the total receipts were £320 less than the previous year. On the general result the hospital was £188 12*s.* 6*d.* in debt. Reference was made to the interesting fact that the chairman of the meeting—the Lord Mayor of Belfast—was the brother of Dr. W. K. McMordie, who, in 1872, had founded the Belfast Samaritan Hospital.

Feb. 22nd.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Anastomosis of the Facial and Spinal Accessory Nerve.

AT a recent meeting of the Neurological Society Dr. Unger reported a case of paralysis of the right facial nerve which occurred after the extraction of six teeth, and which he had endeavoured to relieve by performing an anastomosis of the facial with the spinal accessory nerve. These two nerves were made accessible by an incision along the anterior edge of the sterno-mastoid muscle, beginning from the mastoid process. A small branch detached from the spinal accessory nerve was then united by three silk sutures to the facial nerve, which had been previously divided as far back as possible. The incision healed by primary union. The result was that after about six months the patient first observed movement and contractions of the paralysed muscles when she moved her arm. After a year some paresis of the muscles supplied by the spinal accessory nerve had developed, the right shoulder being lowered, the clavicle being thrown forward, and the supraclavicular cavity becoming deeper than on the left side. Voluntary movement of the muscles supplied by the facial nerve was, however, impossible, but when the right arm was raised all its branches exhibited involuntary movement, the frontal branches excepted. In the subsequent discussion it was said that although a certain mobility of the facial muscles was restored by the operation their dependence on the movements of the arm was nevertheless a drawback; moreover, that the weakness of the arm resulting from the operation made an anastomosis of the facial with the hypoglossal nerve preferable to an anastomosis with the spinal accessory.

Therapeutical Action of Radium Emanation.

At a meeting of the Verein für Innere Medicin Dr. Löwenthal read a paper on Some Therapeutical Effects of

Radium. He said that the external effect of radium on the skin did not differ very much from that of the Roentgen rays, and that in consequence of its costliness its use has almost been abandoned except in the treatment of cancer, for which it has been recently employed by Professor Czerny. For internal treatment radium itself was of little benefit because it was not absorbed by the intestines and was eventually discharged by the bowels, but the emanation which behaved as a gaseous substance was absorbed. The therapeutical action of radium emanation was confirmed by the fact that a reaction occurred in patients after a bath containing emanation in the same way as it did in the so-called Wildbäder, which contained a great amount of emanation. The conditions for which emanation baths were indicated were the same as for Wildbäder—namely, rheumatic diseases of the joints and muscles, chronic neuritis and myocarditis, chronic catarrh of mucous membranes, and gout. According to the experiments of Dr. Löwenthal, the emanation was absorbed through the respiratory tract and the gas rested in the body for a period of three or four hours. He has also studied the manner in which the curative action of emanation might be explained. It has been suggested that the action might be either a bactericidal or an antitoxic one, but this proved to be erroneous. He found, however, in the course of his experiments that the emanation made the ferments of the organism more active and favoured autolysis. Autolysis in the test-tube meant an increase of the absorbing power in the living organism, and the beneficial action of radium in chronic rheumatic and gouty diseases might be explained on these principles. Radium had also a solvent action on urates. The β and γ rays of radium had also a biological effect which continued to operate in the organism, whereas the influence of the α rays was more transitory. The hitherto inexplicable fact that some Wildbäder produced effects at a comparatively late date might thus be accounted for.

The Position of Privat-docenten.

The medical faculty of the University of Berlin intends to introduce some modification in the status of *privat-docenten* by recognising them only for the term of five years, after which time the faculty will again in each case consider whether they shall be allowed to continue lecturing or not. It is said that the increasing number of *privat docenten* makes a reform necessary; at the present time there are no fewer than 129 actually recognised and 17 medical men are applying for admission as such. It is further agreed that certain *privat-docenten* or applicants hold their office or apply for it as the case may be, not for scientific reasons or because they have a taste for lecturing, but merely as a way to get practice, since their possession of a title distinguishes them in the eyes of the public from the rank and file of the profession. Some of them have only very few pupils, or even do not lecture at all, whilst still retaining their title. The faculty will in future relieve after a term of five years all those *privat-docenten* who have not accomplished meritorious scientific work and have not got a sufficient number of pupils. It is hoped that by this system the number of applications will become smaller, because the applicants will certainly not readily incur the risk of being refused a prolongation of the term of five years, for this would be prejudicial to their scientific and professional reputation. The intention of the Berlin medical faculty, which must receive the approval of the Government before it comes into operation, has caused a good deal of discussion in medical and university circles. Although some of the evils of the existing system are freely admitted, it is said that the reform while doing away with them will create others. After the change has taken place the faculty will certainly recognise *privat-docenten* more readily than hitherto, because they will have the power to get rid of them after five years if they are found to be unfitted for their position. On the other hand, it will be rather difficult to prevent personal reasons from playing a part in the decision, and their dependent position in relation to the faculty will deter *privat-docenten* from expressing views or teaching doctrines at variance with those of the leading members of the faculty. There is reason for believing that the proposed change goes rather too far, and that the unsatisfactory features of the present system might be avoided by a careful selection of the applicants independently of family and other reasons, rather than by a scheme incompatible with that liberty of teaching which is the principal *raison d'être* of *privat-docenten*.

Feb. 21st.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

Prognosis in Epilepsy.

IN an address delivered before the Clinical Society Dr. Donath said that it was curious to notice that there has not been during the last 50 years any change for the better in the prognosis of epilepsy under the bromide treatment, judging by the percentages of recoveries recorded before and since 1857, when the treatment was introduced. Thus, before that date different observers varied in their estimation of the probability of cure from Hufeland's 5 per cent. to Herpin's 50 per cent. Since 1857 Nothnagel has recorded 4 per cent. of recoveries, Dana 5 to 10 per cent., Donath 6 to 8 per cent., and Habermaas 10 per cent., while the highest estimate was 12·5 per cent. given by Alt. Dr. Donath, whose experience has been very large, has formulated some conclusions based thereon. Leaving out of count all cases where the epilepsy was due to any obvious organic lesion or was accompanied by any degree of idiocy or imbecility, he found that among patients under observation for lengthened periods 10 per cent. recovered. His definition of recovery was freedom from fits for a period of from six to seven years (nine years according to Aldren Turner); relapses might take place after an interval of four or five years of freedom, but they very rarely occur after longer periods. In exceptional instances, even after very prolonged periods of freedom from seizures, a relapse might follow, as happened in one case after 20 years, and in another after 25 years. Curiously enough, the most unfavourable cases were those of *petit mal*, for it was found that *grand mal* was much more amenable to drug treatment. Both the epilepsy of puberty and that of old age were tractable, while that of childhood and that of adult life were less hopeful. It was important to bear in mind that a family tendency did not in many cases offer any obstacle to the arrest of the disease, under suitable treatment, but it did increase the likelihood of dementia supervening.

Some Drawbacks of Pasteurisation.

In view of recent investigations conducted by Czerny in Germany, by Pannington in Philadelphia, and by Dr. Deutsch of Budapest, it is likely that current views on the value of pasteurisation will have to be altered. The medical profession has for many years been recommending the use of pasteurised milk for the poor of our large towns, and the daily newspapers, following this lead, have had much to say in its praise. It must be admitted that pasteurisation does not in any way alter the nutritive qualities of milk, whatever effect it may have on it from an æsthetic point of view. Moreover, there is no doubt that by pasteurisation the bacterial contents of the milk are for the time greatly diminished, and the danger of infection is proportionately lessened. Unfortunately, however, according to Dr. Deutsch, the diminution of bacteria is only temporary, and pasteurised milk, when examined a day or two after preparation, is found to contain a larger number of bacteria than ordinary milk. The organism chiefly affected by pasteurisation is the lactic acid bacillus, whose therapeutic effects are now so much in evidence.

Aortic Insufficiency after Rupture of a Valve.

Dr Purjesz exhibited a case (in the Erdélyi Orvosegyesület) showing that aortic insufficiency could be caused by a rupture of a valve. He said that this lesion might be due to atheroma, but it was less commonly known that it might occur in a perfectly healthy valve. Aortic insufficiency followed, but extensive vegetation at the seat of injury might also narrow the orifice. It was generally found that an exceedingly loud and rough murmur indicated a traumatic etiology in doubtful cases, but this was not always so. Dr. Purjesz gave the detailed history of the case which was exhibited and demonstrated that a very definite murmur could be heard.

Feb. 21st.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Plague.

PLAGUE returns of the week ending Jan. 8th show 10,515 deaths, compared with 7725 in the week preceding. Bombay Presidency reported 886; Madras, 70; Bengal, 1093; the United Provinces, 5341; the Punjab, 1421; Burma, 109; the Central Provinces, 1198; Mysore State, 79; and Rajputana, 273. With respect to the figures for the United Provinces, Ballia district recorded 2035 deaths and Azamgarh 1119.

New Barracks for Indian Troops.

It is very satisfactory to learn that, on the personal initiative of the Commander-in-Chief, measures are being taken to improve the housing of the native army. The "lines" in only too many instances are not as substantial and weather-proof as could be wished, and the health of the men suffers in consequence. Twenty-one new sets of barracks are to be built of an improved pattern that will ensure wholesome and comfortable quarters for the men, and the expenditure for these is not to fall upon regiments. The old plan of allotting lump sums to commandants and leaving them to make the best use of the money—never really sufficient for the purpose intended—is to be given up, and there will be expert supervision of the planning and construction. The Military Works Department are to be given their chance, and it is certain they will do their work in a practical and economical manner. The outlay from first to last will be heavy, and it will take a considerable time to give all units good "lines"; but a beginning has been made, and not even the most uncompromising critic of the Indian military budget will begrudge expenditure in this new direction.

New Drainage Works at Amritsar.

The Punjab Sanitary Board has granted a subvention of Rs.37,500 for drainage works at Amritsar. The full programme of sanitary work at this station is a very expensive and extensive one, including the filling up of hollows around the town, the deepening of the outfall drainage channel, and the removal of sullage. When completed it should have a very beneficial effect on the health of the station.

St. John Ambulance Association.

The annual report of the Indian Branch of the St. John Ambulance Association for the year ending Sept. 30th, 1909, has just been issued. It is published with the authority of His Excellency the Viceroy, and can be recommended to those who are at all interested in the great humanitarian work of the ambulance department of the Order of St. John. The report gives an account of the organisation of the branch and deals in some 17 sections with the work of the association amongst military and volunteers, police, railway, mines, mercantile marine, jails, &c. Details of the work of the 24 centres in various parts of the Indian Empire are given. A letter from the Principal Medical Officer of His Majesty's Forces in India is published which should lead to a great extension of the work amongst soldiers. A number of soldiers from each unit in India have to be trained annually in "first aid," and the diagrams printed by the association are recommended by Indian Army Regulations, Volume VI., paragraph 896, for use in all classes. The course of instruction covers the association's syllabus, so that military medical officers could, without any additional labour to themselves, put up a large number of men annually for the association's certificates. This has already been done at several stations, and in view of Surgeon-General Trevor's circular will no doubt be taken up in many others. The sanitation course of the association opens up a wide field of work amongst soldiers. In accordance with Indian Army Order No. 334, 1907, four men and a non-commissioned officer per company have to be trained annually in sanitation. The curriculum covers the association's syllabus, and here again a large number of men can be certificated without any additional lectures or examining. Forty-eight men were granted the certificate in the First (Peshawar) Division of the Army during the year. Their commanding officers gladly paid the small fee for the certificates, which are highly valued by the men. The report may be obtained on application to Colonel W. R. Crooke-Lawless, C.I.E., Surgeon to H.E. the Viceroy, or to Major R. J. Blackham, R.A.M.C., Peshawar.

Jan. 15th.

CONSTANTINOPLE.

(FROM OUR OWN CORRESPONDENT.)

A National Disaster.

THE destruction by fire of the magnificent palace of Tchiragan, the new Ottoman Parliament, which was inaugurated only a few months ago, may well be considered a great national disaster for the Turks. They have lost with this splendid edifice perhaps the finest building in the whole of their Empire. A feature of the disaster, a feature almost always met with in extensive fires in Constantinople, was the great lack of water for purposes of extinction. The so-called "Dercos" water that supplied Tchiragan was somehow cut off from the main source during the conflagration, and the fire brigades, the regular and the irregular (popularly known as "touloumbadjis"), were for an hour helpless to combat the disaster. This fact is taken by many as an argument for the supposition of foul play. Then it was found that the palace had not a single contrivance to aid in the extinction of the fire. This has now been found the case in all the public and Government buildings of the metropolis. The authorities have, therefore, ordered that this evil should be remedied as quickly and as energetically as possible. The theatres and the small new circus and other institutions of that kind have received strict injunctions always to keep a number of barrels and buckets full of water ready for immediate use in case of fire.

Typhoid Fever.

The present month has again shown a rather alarming increase of typhoid fever. Several officers of the American Embassy's despatch vessel have been laid up in the British hospital with this disease. They are now, however, on the way of recovery. Fatal cases are most frequently found amongst newcomers to Constantinople. Oysters are one chief cause, while the ever-contaminated water-supplies play their part. The officers alluded to had partaken freely of the oysters of San Stefano on the Sea of Marmora. The beds of these molluscs in that part are considered to be the best in the metropolis. The natives eat them liberally and frequently and almost always without any bad results. Apart from that, the natives or old residents seem to be able to eat and drink almost anything without consequences, as though there is a kind of immunity which those who live here a long time acquire. It is said that the first settlement of Spanish Jews, who came over about 400 years ago and took up a permanent abode on the banks of the Golden Horn, used to suffer terribly from the scourge of typhoid fever. At present this disease seems to have lost much of its virulence for their descendants. Typhoid fever cases amongst them are easily amenable to treatment.

Military Surgeons.

There seems to have been much recent negligence in performing their duty on the part of Turkish military surgeons. It appears that sick soldiers have received inefficient medical and surgical assistance, and numbers were not attended at all. The inadequate scale of pay is assigned as the cause of this negligence. I am informed that some medical men in military service in Constantinople itself, men with long experience, do not get more than 600 piasters per month (£5). This is, of course, a miserable salary, and one can hardly wonder that they are not very eager to do full justice to their duties. The Minister of War, however, has issued an order that all military surgeons must attend to their work with more zeal and efficiency. In cases of further neglect they will be liable to severe punishment. I understand, however, that the question of the increase of salary is shortly to be taken up in a very energetic manner by some competent leading men.

Feb. 12th.

NOTES FROM CHINA.

(FROM OUR OWN CORRESPONDENT.)

Ulceration and Cancer of the Penis.

THESE diseases have on various occasions been noted by foreign doctors here as occurring more frequently in hospitals for Chinese than among similar institutions at home. In cancer it is probable that the epithelioma is often a papilloma to begin with, which has become malignant from the chronic irritation of rough cotton trousers. The main etiological factor in ulceration is prolonged and untreated venereal disease, though there is no excuse for any native suffering to such an extent as many of them do, for the treatment adopted in China for the past 2000 years corresponds to modern Western methods. Calomel, cinnabar, and realgar are among the recognised formulæ, the former entering into every native prescription. In cases of cancer the general experience is that the cervix in the female and the penis in the male are by far the commonest sites of malignant disease in China, and these observations raise an interesting point as to the possibility of malignant cervical disease being caused by infection from cancer cells from the penis, for I have known cases that admitted cohabitation although suffering from painless epitheliomata.

Owing to the dirty habits of the Chinese, their indifference to disease so long as it is mild, and the absence of Lock Hospitals or any surveillance by the authorities, cases occur of sloughing phagedena of a worse kind than is seen at home. I have met with two cases within the past year in which the penis has been amputated for phagedænic gumma in mistake for cancer. But whether the diagnosis be wrong or not cases occur in which syphilitic ulceration may reduce the patient to a condition beyond medicinal treatment and necessitating amputation. An example of this occurred in a native at Hankow, who came under the care of Dr. R. T. Booth, where the patient suffered from ulceration of the penis severe enough to render amputation advisable but refused to submit to such a radical measure and went away. In nine months he returned, and during this time the entire penis had ulcerated away, and the scrotum had evidently ulcerated in the middle line right back to the perineum, ultimately extending to the margin of the anus. The remains of the scrotum, enclosing the testicles, lay as two folds, simulating labia majora, and the whole appearance was not unlike that produced by ulcerating granuloma of the pudenda in a female. This man was one of three cases in the hospital at the time suffering in the same way.

My experience of cancer of the penis in Peking is limited to eight cases, seven of whom have submitted to the *complete* operation, but I regret to be unable to give statistics owing to the impossibility of tracking cases here once they have left hospital. The fact that they have not returned to hospital is in favour of non-recurrence. Happening recently to meet one case which was operated on over two years ago and remains quite well, I am tempted to hope the others may have likewise benefited. In THE LANCET of Jan. 11th, 1908, p. 135, there is a note by your correspondent from Vienna that, in the opinion of Professor Spiegler, the removal of epitheliomata of the penis, if done early enough, could be followed by complete freedom from relapse. The complete operation referred to above was reported on some years ago very favourably by Dr. J. D. Thomson of Hankow, after an experience of 30 successful cases. Though it involves a very thorough removal, or, as he described it, a "clean sweep," I can corroborate his opinion that the operation is not followed by any shock or untoward results, and it is also a better one than that described in surgical text-books, especially those which advocate the split scrotum operation, as it avoids the misery caused by urine dribbling and excoriating the scrotum. Also if there is anything in the assertion that inoperable cases of cancer in the breast in women are kept in check by removal of the ovaries, it is reasonable to hope that removal of the testicles may have some effect in lessening the chances of recurrence or of delaying growth in glands in the abdomen.

The first step in the operation is to secure the penis behind the disease by a strong, tightly-drawn temporary ligature and to sweep away the mass in front of this ligature. On account of the liability of the corpora to retract within the sheath it will be well to secure them before they are divided. The parts are again cleansed (I paint over with tinct. iodi), and now the inguinal glands and lymphatic-bearing tissue on both sides are removed; the cords are secured and divided; and the groin incisions necessary for these procedures are joined above the root of the penis well free of the disease, the incision being here carried through the suspensory ligament kept tight by dragging on the stump of the penis. The cords do not give trouble, they are cut across and the vessels secured by ligature, the stumps lying within the openings of the inguinal canals. The scrotum is now lifted up, and somewhere near its junction with the perineum a point in the middle line where the corpus spongiosum containing the urethra will lie evenly and naturally is marked; and from the cross incision to this point the skin and underlying tissues on both sides are evenly divided, leaving flaps that in conjunction with the upper, pubic, flap will meet without tension in a form something between a Y and a T. The freed scrotum is now held up or clipped away, while the corpus spongiosum is divided transversely behind the temporary ligature spoken of at the beginning, and is carefully dissected from the corpora cavernosa. This process is greatly facilitated by passing a metal bougie into the urethra and by means of it putting the tissues between the corpus spongiosum and the corpora cavernosa on the stretch while the cutting edge of the scalpel is inclined towards the corpora cavernosa. This done, a blunt instrument is pushed from below upwards between the crura, to separate and allow the finger to get in between them. The dorsal vessels are now secured and the crura ligatured as closely as possible to the arch of the pubis and divided beyond the ligatures. Everything has now been removed except the corpus spongiosum containing the urethra, and it has been left sufficiently long to project well from the lower angle of the wound. After the flaps are sewn no drainage is required. The whole area, if healed by first intention, is smooth and clean, the urethra projects at the lower angle of the perpendicular limb of the wound, and urine can be passed freely in the usual way in the erect position.

Of eight cases operated on by Dr. J. L. Maxwell of Formosa, who followed the Pearce-Gould operation, two recurred in the scrotum and one without local recurrence infected too extensively for operation the right inguinal glands. Dr. Thomson's operation is more thorough than that of Dr. Förderl of Vienna, described two years ago in THE LANCET, and it minimises to the utmost possible extent the chance of recurrence.

Jan. 22nd.

Obituary.

SIR CHARLES HAYES MARRIOTT, M.D. LOND., F.R.C.S. ENG.,

CONSULTING SURGEON TO THE LEICESTER INFIRMARY.

THE death took place at Harcourt House, Kibworth Harcourt, Leicestershire, on Feb. 14th, of Sir Charles Hayes Marriott, at the age of 75 years.

Sir Charles Marriott was born in 1834 at Kibworth and was the son of Mr. John Marriott, M.R.C.S. He was educated at Uppingham and subsequently at University College, London. In 1857 he qualified with the Licence of the Society of Apothecaries and in the following year he obtained the Membership of the Royal College of Surgeons of England, which he converted to the Fellowship in 1859, and also graduated in Medicine at the University of London. He took his M.D. in 1863.

In 1859 he was appointed house surgeon at Leicester Infirmary, and two years later, on giving up this post to take up private practice in the town, he was elected an honorary surgeon of that institution, an office which he held until 1901, when he retired and was appointed honorary consulting surgeon. During this long period he gave of his best work to the infirmary, and he was rewarded by becoming one of the most successful operating and consulting surgeons in the Midland counties. When he retired from the post of honorary surgeon the weekly board of the Leicester Infirmary passed a resolution accepting his resignation with deep regret and placing on record its appreciation of his valuable work and distinguished career. He was knighted in 1904, and all sections of the community, irrespective of creed and party, rejoiced in the honour paid to one who conferred distinction on his profession and his native county.

Sir Charles Marriott was a keen politician and was

president of the Harborough division of the Conservative Association from 1892 to 1907, when he resigned owing to failing health. He was a J.P. both for the borough and county, and a Deputy Lieutenant of the county. He did much to further the interests of the Leicestershire County Cricket Club; he was one of the founders of the Leicester Nursing Association, an active supporter of the National Society for the Prevention of Cruelty to Children, and formerly chairman of the local branch of the Royal Society for the Prevention of Cruelty to Animals. He married Lucy, daughter of the Rev. John Gibson, who survives him, together with a family of four sons and two daughters.

The following lines are written by one who knew him intimately:—

"In London Sir Charles Marriott lived as a student with Sir William (then Dr.) Jenner, and from him gained a great deal of the sound clinical knowledge which stood him in good stead all his life. He gained also a genuine love for, and pride in, his profession, and he acquired an eagerness in learning it that made hard work as a student a readily accepted task, and brought him to the front rank from the beginning. He used to say that it was Sir William Jenner's example that inspired him, and that he owed to him a debt he could never repay. Sir William Jenner had a great regard for him, and between the two there was a lifelong friendship.

"As so often happens in the case of a surgeon in the full swing of his practice, he was such a busy man that it was almost impossible for him to keep full notes of his cases; it thus happens that he has contributed very slightly to surgical literature. He was, however, a very fine operator and a most excellent clinician, whose opinion upon a case was always careful, wise, and helpful, for his—what has been called—clinical instinct was remarkable, his knowledge of his profession was sound, and his judgment wonderful. He performed one of the earliest successful cases of removal of spleen, the specimen being now in the Royal College of Surgeons Museum; and at Nottingham in 1892 he showed a successful case of simultaneous ligature of the carotid and subclavian for aneurysm of the innominate at the meeting of the British Medical Association. As an example of his dexterity he was operating at the Leicester Infirmary before a large audience, and although an anæsthetic was being administered, and he was quite unaware that he was being timed, he removed the thigh, disarticulating at the hip, in 40 seconds. He watched all the wonderful benefits of the antiseptic system, and followed the directions of Lord Lister upon its introduction without cavil or hesitation, and he has sometimes said that of all the things he had lived to see in the advance of his profession, the thing which of all others gave him the greatest pleasure was the antiseptic system; and he would relate, by way of contrast, some of the horrors of the pre-antiseptic days, which now seem almost incredible. He was genial and widely beloved, but he could be very blunt if anything was not done as it should be. He was kindness itself to patients who were under his care, and invariably had their entire confidence, for he was a man whom people instinctively trusted. He was quick in getting through his work, but always avoided the appearance of hurry. He had a keen eye and a countryman's love for the country; he was a great lover of birds and a close observer of their habits. In his beautiful garden at Kibworth, where he lived for the last 26 years of his life, he would sit for hours watching them, and had many interesting stories to tell of their doings. His death will be widely mourned, and his funeral at Kibworth on Feb. 17th was very largely attended, whilst a memorial service was held in the chapel of the Leicester Infirmary, which he had faithfully served for so many years."

THOMAS KILNER CLARKE, M.A., M.B. CANTAB., M.D. DUB., F.R.C.S. ENG., J.P.,

SURGEON TO THE HUDDERSFIELD INFIRMARY.

BY the death of Dr. Thomas Kilner Clarke of Huddersfield the profession in general and the West Riding of Yorkshire in particular have lost one whose personal gifts and professional attainments gained wide recognition and a high reputation. Although in the active years of his career he was in general practice he was much more than a general practitioner. For 20 years he was the leading consultant in Huddersfield and a wide area around it. Born in 1843, Dr. Clarke was bred up to join the medical profession. His father held one of the leading practices in the town. To this at the age of 28 Dr. Clarke succeeded, and it is no reflection on the father to record how successfully the son extended the practice. Dr. Clarke came to his life's work well equipped. A Cambridge graduate and a Guy's man, with all the true disciple's affection for his old hospital and *alma mater*, he completed his studies in Paris. After serving as house physician at the London Fever Hospital, as clinical assistant at the Evelina Hospital for Sick Children, and clinical assistant at the City of London Hospital for Diseases of the Chest, he returned to Huddersfield, where his abilities were soon recognised and he was chosen for the first vacancy on the infirmary staff. He held the appointment of surgeon to the infirmary till his death.

Dr. Clarke was a hard worker, and when abdominal surgery was developing he gave himself a holiday by spending six months with Mr. Lawson Tait, then at the height of his popularity. There was no abdominal operation with which Dr. Clarke was not familiar. That he was abreast with all the latest work and well equipped in every direction is shown by the fact that he was the first English surgeon to do a successful gastro-enterostomy, while his opinion upon chest cases was widely sought by his colleagues. As a consultant and colleague he combined with an insight at once shrewd and kindly, a loyalty to his brother practitioners, a brightness of manner and a sense of responsibility which gave an added weight and charm to his ripe knowledge and skill. He possessed in a marked degree the virtue extolled by Professor Osler—*æquanimitas*. He was never flurried, always courteous, and no complication was too great, no detail too trivial for his attention. In social life he was a most entertaining and charming man. He could throw off the cares of practice, and from a wide experience of men and things in all parts of the world pour forth reminiscences and anecdotes. Withal he was a shrewd man of business—he was a Yorkshireman. In addition to the posts of certifying factory surgeon, referee under the Workmen's Compensation Acts, medical officer to the Post Office and the railway companies, Dr. Clarke had held the offices of President of the Yorkshire Branch of the British Medical Association, the West Yorkshire Medical Charitable Society, the Leeds and West Riding Medico-Chirurgical Society, and the Huddersfield Medical Society. He was also a vice-president of the North of England Gynæcological Society. Like most busy men, he did not allow the narrow trammels of his profession to limit his energies. As a magistrate, as president of the local Society for the Prevention of Cruelty to Animals, as a member of the public library and art gallery committee, and candidate (though an unsuccessful one) for a seat in the town council, he did useful public work. He was fond of sport and hunting, a good shot, and an ardent fisherman. His contributions to medical literature, though not numerous, were not confined to Britain. *La Tribune Médicale* accepted an article from him on gastro-enterostomy, whilst papers on excision of the tongue, tubercular peritonitis treated by washing out the abdominal cavity with carbolised water, cases of gastro-enterostomy, extra-uterine gestation, and venesection indicate the varied directions of his work.

He died at the comparatively early age of 66 from Bright's disease, leaving a widow but no children. To her we tender our sincere sympathy.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Franz Windscheid, extraordinary professor of nervous diseases in the University of Leipsic. He was recognised as an authority on the causation of nervous diseases by railway and other accidents. He was 48 years of age.—Dr. Emanuel Zaufal, extraordinary professor of otology in the German University of Prague, where he was the first regular teacher of that subject. He wrote a good many monographs on special methods of aural examination and on the bacteriology of diseases of the ear. He operated frequently in both nose and ear cases. He was about 73 years of age.—Dr. Sergei Botkin, the Tsar's personal physician, suddenly, after returning home from a professional call. He was the son of the eminent surgeon, Dr. Sergei Petrovich Botkin.

Medical News.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—The following candidates have passed in Chemistry and Physics of the First Dental examination :—

A. Cohen, L. E. Egan, E. Lanigan, S. Robinson, and F. W. Watson.

The following candidates have completed the First Dental examination :—

P. B. Birmingham and L. J. Smyth.

The following candidate has passed the Final Dental examination and has been admitted a Licentiate in Dental Surgery :—

J. S. McHugh.

The examination for the Fellowship of this College is now divided into two parts—viz., the Primary (Anatomy, Physiology, and Histology) and the Final (Surgery, Surgical Anatomy, and Pathology). The examinations are held three times in each year, in the months of March, July, and November. Examinations at any other time will not be granted in any circumstances.

UNIVERSITY OF OXFORD.—Notice is given that the examination for the Diploma in Ophthalmology will commence on July 19th next at the Examination Schools. Candidates must have their names on the Medical Register of the United Kingdom, or, if they are Graduates in Medicine of a University outside the United Kingdom, must obtain the permission of the Board of Faculty of Medicine. The names of candidates will be received by the assistant registrar, University Registry, Old Clarendon Building. They must be sent in, with the requisite certificates, on forms provided by him for the purpose and to be obtained at his office, so as to reach him on or before June 30th. The statutable fee must be paid at the time of entering the name. The following have been elected to the Board of Faculty of Medicine: J. R. Magrath, D.D., Provost of Queen's College; F. A. Dixey, D.M., Fellow of Wadham College; A. L. Ormerod, New College; A. P. Dodds-Parker, B.M., Magdalen College; and W. Bruce Clarke, B.M., Pembroke College.

MEDICAL TREATMENT OF SCHOOL CHILDREN IN GREENWICH AND WOOLWICH.—The day-schools subcommittee has reported further with reference to the steps to be taken to secure medical treatment for school children in districts inaccessible from hospitals. Amongst those districts the subcommittee included Greenwich and Woolwich, and as to Greenwich an offer had come from the governing body of the Miller Hospital to provide treatment of ringworm by means of X rays for 50 children during 12 months in return for a grant of £55. The Education Committee agreed to accept the offer, the following being the more important conditions set out in the agreement between the parties: No cases shall be received for treatment except such as are found on inquiry to be from their circumstances and the nature of their disease suitable for special hospital treatment. The hours of attendance must be made to suit the convenience of the hospital. No grant shall entitle the London County Council to representation on the governing body, nor to the right of interference in any way with the work of the departments. The payment of £55 shall be accepted by the governing body in full discharge of the expenses incurred, including adequate payment for clinical assistants. On Feb 16th it was reported that the committee of Woolwich and Plumstead Cottage Hospital, Shooter's Hill, was prepared to undertake the treatment of 1000 children suffering from eye, ear, nose, and throat ailments. The hospital authorities propose, pending the erection of a new general hospital in Woolwich, to fit up an out-patient department in the centre of Woolwich for the purpose. The medical staff of the hospital would attend this department at specified times for the treatment of school children, it being understood that serious operations would be performed at the Cottage Hospital, Shooter's Hill. The terms on which the hospital authorities were prepared to undertake the work were in general agreement with those made at most of the other hospitals. It was recommended that an agreement be entered into for the treatment of not more than 1000 children during a year, beginning on April 1st, 1910, and that expenditure not exceeding £200 be sanctioned for the purpose. The Council has agreed to the proposals.

Sir James Crichton-Browne, F.R.S., will preside at the annual dinner of the London School of Clinical Medicine (Post-graduate), at Princes' Restaurant, on March 15th.

WE understand that an appeal which has been made on behalf of the widow of the late Mr. C. R. B. Keetley has been well responded to. The fund already amounts to upwards of £1000. The treasurer of the fund is Dr. J. B. Ball, 12, Upper Wimpole-street, London, W.

THE London County Council on Feb. 22nd approved an increase in the salary of Dr. C. J. Thomas, assistant medical officer in the Education Department, from £700 to £750 a year, rising by one increment to £800, in recognition of his valuable original work during the last seven years.

ILLEGAL SALE OF PATENT MEDICINES.—A commission agent named Leslie Smith was charged at Birmingham on Feb. 16th with selling two bottles of patent medicines insufficiently stamped and without a licence. An Excise officer had bought the medicine for 3*s*. On one bottle there was a 3*d*. stamp instead of a 6*d*. one, and it was affixed in such a way that the medicine could be poured out without removing the stamp. In the other case the stamp was removed by hot water on Smith's premises. The magistrates who heard the case rightly took a serious view of it and inflicted a fine of £15 and costs.

THE WORKING OF THE MIDWIVES ACT.—The Local Government Board has addressed a circular to boards of guardians calling attention to the report of the recent Departmental Committee appointed to consider the working of the Midwives Act, 1902, especially as regards two points. The first concerns payments to medical practitioners summoned by midwives in cases of emergency, concerning which the committee recommends that the Act of 1902 should be amended so as to give any medical practitioner summoned by a midwife in cases of emergency "a secure expectation of payment," and that the Poor-law authority should be responsible for the fee, when the medical man cannot otherwise obtain payment, and should be empowered, if they think fit, to charge the fee paid as "relief on loan." The Board regards it as of immediate importance that medical practitioners should, so far as practicable, feel assured of a reasonable payment for their services in such cases, and desires to impress upon boards of guardians that they should give effect, if they have not already done so, to the suggestion made in the circular letter of July 29th, 1907—viz., that medical men and certified midwives practising in the Poor-law union should be informed that, as regards any poor person in whose case the attendance of a registered medical practitioner is required, the guardians will be prepared to exercise their powers under Section 2 of the Poor-law Amendment Act, 1848, and to pay a reasonable remuneration to the medical man called in. The Board thinks that any medical practitioner who makes a claim on the guardians for a fee in such a case might properly be asked to state definitely that after making reasonable efforts he had failed to secure payment from the person attended. The second point concerns the supply and training of midwives. The committee had under its consideration, in connexion with the supply of midwives, the question of the appointment of salaried midwives by the Poor-law authority; but it will be observed (paragraph 107) that they regard as preferable an extended utilisation of voluntary agencies by that authority. Reference is made in paragraph 39 of the report to the powers possessed by guardians to contribute to the support of district nursing associations. Such support should be given in return for, and in reasonable proportion to, the services rendered. The Board concurs in these conclusions, and will be prepared to give favourable consideration to any application from the guardians for sanction to such payments. In regard to midwifery training in Poor-law institutions, the Board draws the attention of guardians to the committee's view that the use of such institutions for the training of midwives "should be encouraged and, if possible, developed," and that the expediency of the further utilisation of the maternity wards in such institutions for the purpose of teaching midwifery should be impressed on boards of guardians.

FIRE AT A LIVERPOOL HOSPITAL.—An outbreak of fire occurred on Feb. 19th at the Liverpool corporation's Parkhill fever hospital, Liverpool. In spite of the efforts of the fire brigade the officers' quarters were destroyed. 20 patients had to be removed temporarily to neighbouring houses from a measles ward. No lives were lost, but the nurses' home and maids' quarters were destroyed.

THE TRAFFIC IN OLD HORSES.—At a meeting of the City of London Court of Common Council last week Mr. D. G. Collins, chairman of the Cattle Markets Committee, said that the committee had expended a good deal of money in stopping the export of worn-out and diseased horses to the continent from the City wharves during the last three years. It was now practically impossible for such a horse to enter the City without coming to the notice of the officials, and the animals exported were all in good condition and fit to travel. We believe that much has been done to mitigate a cruel and horrible evil, but from recent reports of police-court proceedings in the *Times* Mr. Collins would seem to have taken an over-hopeful view of the present state of affairs. Since Feb. 7th three men have been prosecuted in the City for the same old offence, but unfortunately only in one of them was the owner of the horse brought to book. He had to pay a fine of £3 and £1 16*s.* costs at the Guildhall, whilst Alderman Sir George Woodman discharged with a caution the man who was actually arrested leading the horse from Paddington to Fresh Wharf. A public meeting of protest against the traffic, under the chairmanship of the Duke of Portland, was held at Shoreditch on Feb. 22nd, under the auspices of the Our Dumb Friends' League.

THE AFTER-CARE ASSOCIATION.—The annual meeting of the After-Care Association for Poor Persons Discharged Recovered from Asylums for the Insane was held on Feb. 16th at the Royal College of Physicians of London, under the chairmanship of the President of the College. The chief objects of this association are to facilitate the re-admission into social life of poor persons discharged recovered from asylums for the insane. 1. By obtaining for them when needful an interval of change of scene and air, often so beneficial on recovery from ordinary sickness; by boarding them out, when thought desirable, in families, in the country under proper care; or by placing them in various institutions in London and other large towns until work can be found. 2. By finding them suitable employment. 3. By giving them grants in kind or money towards maintenance while seeking work, by providing clothing, or by redeeming or procuring tools when occupation is found. The report showed that during the past year 348 applications for work from discharged patients had been dealt with. The receipts for the year were £1273, the City Companies having contributed with especial generosity. The adoption of the report was moved by the Bishop of Rochester and seconded by Dr. G. H. Savage, whilst Sir William Collins and Dr. E. M. Cooke also spoke in praise of the association before the President put the resolution to the meeting. The Bishop of Stepney, seconded by Dr. Robert Jones, moved the election of the officers, and the vote of thanks to the chairman was proposed and seconded by Dr. C. Hubert Bond and Dr. Henry Rayner (chairman of council) respectively. The secretary of the association is Mr. H. Thornbill Roxby, and the offices are in Church House, Dean's-yard, Westminster.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The New Parliament.

THE new Parliament assembled on Tuesday, Feb. 15th, the first week being spent on the preliminary business of electing a Speaker and of swearing in Members. The State opening took place on Monday, Feb. 21st, when the King read his speech from the throne. An interesting and important debate, which is still in course of progress, ensued thereon.

Retirement of Sir Walter Foster.

Sir B. Walter Foster, one of the oldest and best known representatives of the medical profession in Parliament, has resigned his seat for the Ilkeston Division of Derbyshire.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BENNETT, F. G., L.S.A., has been appointed Workhouse Medical Officer and Outdoor Medical Officer to the Chapel-en-le-Frith Board of Guardians.

DAWSON, R. B., L.M.S.S.A. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Malden Newton District of the county of Dorset.

HUGHES, E. E., M.B., Ch.B. Vict., has been appointed Senior House Surgeon at the Manchester Royal Infirmary.

JORDAN, N. T. K., M.R.C.S., L.R.C.P. Lond., has been appointed Junior House Surgeon at the Manchester Royal Infirmary.

LANGDON, H. T. C., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Officer of Health to the Mansfield Town Council.

LAWSON, ARNOLD, F.R.C.S. Eng., L.R.C.P. Lond., M.D. Brux., has been appointed Assistant Ophthalmic Surgeon to the Middlesex Hospital.

NEWTON, C. T. H., M.B., Ch.B. Edin., has been appointed Junior House Surgeon at the Manchester Royal Infirmary.

PHILIPSON, Sir GEORGE HARE, M.D. Cantab., D.C.L., LL.D. (hon. causâ) Glasg., has been appointed Senior Pro-Vice-Chancellor of the University of Durham.

SMALLWOOD, E., M.D. Brux., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Officer to the Norwood District and Medical Officer to the Home for Aged Poor, Norwood.

THOMSON, J., M.B., Ch.B. Edin., has been appointed Superintendent of the Tuberculosis Institution at Tronquille, Victoria, British Columbia.

TODD, T. W., M.B., Ch.B. Vict., has been appointed Senior House Surgeon at the Manchester Royal Infirmary.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BARNSLEY, BECKETT HOSPITAL AND DISPENSARY.—Honorary Ophthalmic Surgeon.

BATH ROYAL UNITED HOSPITAL.—House Physician. Salary £80 per annum, with board, lodging, and washing.

BERMONDSEY PARISH INFIRMARY AND CASUAL WARDS, Lower-road, Rotherhithe, S.E.—Senior Assistant Medical Officer. Salary £170 per annum, with rations, washing, and apartments.

BIRMINGHAM QUEEN'S HOSPITAL.—Pathologist. Salary £100 per annum.

BIRMINGHAM UNIVERSITY, PATHOLOGICAL DEPARTMENT.—Assistant Lecturer in Pathology and Bacteriology. Salary £50 per annum.

BROMLEY, BOROUGH OF.—Temporary School Medical Officer (female). Salary at rate of £20 per calendar month.

BUENOS AYRES, BRITISH HOSPITAL.—Senior Resident Medical Officer. Also Assistant Resident Medical Officer, both unmarried. Salaries £250 and £200 per annum respectively, with board, lodging, &c.

BURTON-ON-TRENT INFIRMARY.—House Surgeon. Salary £120 per annum, with rooms, board, &c.

CANCER HOSPITAL, Fulham-road, London, S.W.—Medical Officer in Charge of Electrical Department. Salary £26 5*s.* per annum.

CARDIFF, UNIVERSITY COLLEGE OF SOUTH WALES AND MONMOUTHSHIRE.—Professor of Pathology and Bacteriology. Salary £450 per annum. Also Lecturer in Histology and Embryology. Salary £200 per annum.

CARLISLE, CUMBERLAND INFIRMARY.—Resident Medical Officer. Salary at rate of £80 per annum, with board, lodging, and washing.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Gray's Inn-road, W.C.—House Surgeon. Salary at rate of £50 per annum, with board and residence.

CHELTENHAM GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £70 per annum, with board, lodging, and washing.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Physician. Salary 40 guineas per annum. Also House Physician for six months. Salary at rate of £75 per annum, with board, washing, and residence.

CREWE, BOROUGH OF.—Temporary Assistant to the Medical Officer of Health for three months. Salary at rate of £6 6*s.* per week.

DOWNPATRICK, DOWN DISTRICT LUNATIC ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £130 per annum, with apartments, board, washing, &c.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—House Surgeon. Salary at rate of £75 per annum, with board and residence.

GATESHEAD, COUNTY BOROUGH OF.—Assistant School Medical Officer. Salary £250 per annum.

HUDDERSFIELD INFIRMARY.—Senior Assistant House Surgeon. Also Junior House Surgeon. Salaries £80 and £60 per annum respectively, with board, residence, and washing.

HULL, VICTORIA CHILDREN'S HOSPITAL, Park-street.—Assistant House Surgeon (female). Salary £40 per annum, with board and laundry.

LIVERPOOL, DAVID LEWIS NORTHERN HOSPITAL.—House Physician and Two House Surgeons for six months. Salaries at rate of £60 per annum, with residence and maintenance.

LIVERPOOL DISPENSARIES.—Head Surgeon, unmarried. Salary £170 per annum, with board and apartments.

LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—House Physician and House Surgeon for six months. Salary at rate of £60 per annum, with board and residence.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Resident Medical Officer, unmarried. Salary for first six months £40, for second six months £50.

MANCHESTER, COUNTY ASYLUM, Prestwich.—Junior Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, and washing.

MANCHESTER ROYAL INFIRMARY CONVALESCENT HOSPITAL, Cheadle.—Assistant Medical Officer, unmarried, for six months. Salary at rate of £80 per annum, with board and residence.

MARGATE, ROYAL SEA BATHING HOSPITAL.—Resident Surgeon. Salary at rate of £80 per annum, with board and residence.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—House Physician, House Surgeon, Assistant House Physician, and Assistant House Surgeon, all for six months. Salary of two former at rate of £40 per annum and of two latter at rate of £20 per annum. Also Resident Anæsthetist. Salary at rate of £80 per annum.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—Clinical Assistants.

NORWICH, NORFOLK EDUCATION COMMITTEE.—Assistant Medical Officer. Salary £250 per annum.

NORWICH, NORFOLK AND NORWICH HOSPITAL.—Assistant House Surgeon for six months. Salary £20, with board, lodging, and washing.

NOTTINGHAM GENERAL HOSPITAL.—Honorary Physician.

PETERBOROUGH INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with residence, board, and laundry.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Resident Medical Officer for four months. Salary at rate of £60 per annum, with board, residence, and washing.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—Assistant Resident Medical Officer. Salary £75 per annum, with board, residence, and washing. Also Pathologist Registrar. Salary £200 per annum. Also House Surgeon for six months. Salary at rate of £60 per annum, with board, residence, and washing. Also Surgeon in Charge of Out-patient Department for the Ear, Nose, and Throat.

ROCHESTER, ST. BARTHOLOMEW'S HOSPITAL.—House Physician. Salary £110 per annum, with board and residence.

ROTHERHAM HOSPITAL.—Senior House Surgeon. Salary £110 per annum, with board, lodging, and washing.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—Honorary Dental Surgeon.

ROYAL NAVAL MEDICAL SERVICE.—Examination for Fifteen Commissions.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, Leicester-square, W.C.—Physician.

SHEFFIELD UNIVERSITY.—Junior Demonstrator in Pathology. Salary £150 per annum.

STAFFORD, STAFFORDSHIRE GENERAL INFIRMARY.—Assistant House Surgeon. Salary £82 per annum, with board, residence, and laundry.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Assistant Resident Medical Officer, unmarried. Salary £100 per annum, with board and lodging.

WALSALL AND DISTRICT HOSPITAL.—Senior House Surgeon. Salary £100 per annum, with board, residence, &c.

WALTHAMSTOW HOSPITAL FOR INFECTIOUS DISEASE, Chingford.—Resident Medical Officer. Salary £120 per annum, with rooms and board.

WARRINGTON INFIRMARY AND DISPENSARY.—Junior House Surgeon. Salary at rate of £100 per annum, with board, lodging, and laundry.

WINCHESTER, ROYAL HAMPSHIRE COUNTY HOSPITAL.—House Physician.

WISBECH, NORTH CAMBRIDGESHIRE HOSPITAL.—Resident Medical Officer. Salary £150 per annum, with unfurnished house.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of a vacancy as Certifying Surgeon under the Factory and Workshop Act at Biggar, in the county of Lanark.

Births, Marriages, and Deaths.

BIRTHS.

LEGAT.—On Feb. 18th, at Murray House, Staple Hill, Bristol, the wife of Dr. R. Eddowes Legat, of a son.

MCMICHAEL.—On Feb. 18th, at The Croft, Vowchurch, Hereford, the wife of Arthur W. McMichael, M.R.C.S., L.R.C.P., of a daughter.

MORTIMER.—On Feb. 17th, at Hazelwell, Kirtleton-avenue, Weymouth, the wife of Fleet-Surgeon E. F. Mortimer, R.N., of a daughter.

SHELDON.—On Feb. 16th, at Cornwall-road, Notting Hill, W., the wife of Walter Sirr Sheldon, M.R.C.S., L.R.C.P., of a son.

WOODBURN.—On Feb. 11th, at Theale, near Reading, the wife of W. Y. Woodburn, M.D., of a daughter.

DEATHS.

CAMPBELL.—On Feb. 17th, at Cloncurry, North Queensland, of typhoid fever, J. Campbell, F.R.C.S.I., aged 34 years.

ETESON.—On Feb. 15th, at Longridge-road, S.W., after a few days' illness, Surgeon-General Alfred Eteson, M.D., C.B., in his 76th year.

KNOX.—At Strathdene, Shepherd's Hill, Highgate, on Feb. 20th, Catherine Smith Baird, wife of Robert Knox, M.D.

MANNING.—On Feb. 20th, at Laverstock, after a long illness most bravely and patiently borne, Henry John Manning, of Laverstock House, Salisbury, aged 74 years.

MCKEE.—On Feb. 22nd, 1910, at his residence, 1, Victoria-avenue, Harrogate, James Herbert McKee, M.D., eldest son of John McKee, Wyncroft, Adelaide Park, Belfast. Funeral private to Belfast.

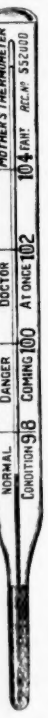
PODMORE.—On Feb. 16th, at The Cottage, South Parade, Chiswick, Robert Podmore, M.R.C.S. Eng., aged 57 years, eldest son of the Rev. Thompson Podmore, formerly of Elstree Hill School, Headmaster of Eastbourne College, and late Rector of Aston-le-Walls, Northamptonshire. Interred in Chiswick Cemetery.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

A CLINICAL THERMOMETER FOR DOMESTIC USE.

THE old lady who declared herself much better for the diagnostic administration of a clinical thermometer could hardly be found at the present day, and perhaps some may think that the public suffers rather from undue familiarity with that indispensable little instrument than from any dangerous ignorance concerning its functions. But there is no doubt that in the hands of a sensible person it may often be of great value in giving a warning that medical help is desirable, and this is especially the case when such a person is concerned with the health of children. The ordinary thermometer is a somewhat delicate affair, and the closeness of its graduations, together with the tenuity of its mercury column, render its reading a difficult matter to the unpractised eye. To meet this difficulty a Canadian medical man, Dr. Sévérin Lachapelle, has devised a domestic clinical thermometer in which the readings are not only reduced to the essential minimum, but the bare record of figures is amplified by terse printed cautions as to the lesson to be drawn from them. This instrument was brought to the notice of the Countess of Aberdeen in her capacity as President of the Women's National Health Association of Ireland, and she has made arrangements with Mr. Hicks, of 10, Hatton-garden, London, E.C., to manufacture and sell the instrument under the name of the "Lady Aberdeen" Maternal Clinical Thermometer. Its distinctive features are shown in the figure, and it is about six inches in length, its graduated portion having a circumference of an inch. Plain directions as to the use of the thermometer in the mouth, armpit, or rectum are issued with the instruments, and we may add that the Women's National Health Association derives a royalty from their sale. These thermometers should certainly prove a useful addition to the medicine cupboards of many nurseries, and deserve the recommendation of medical men, as they give just the information which is required by mothers.



THE ESTIMATION OF AMMONIA AND SULPHATES IN URINE.

IN a paper forwarded to us by Mr. Richard Weiss, Ph.D., M.A., F.C.S., he points out that the quantitative estimation of ammonia in the urine is practically never carried out as a routine measure, because the methods at present in use are complicated and require expensive and cumbersome apparatus, yet the relation between the urea index and the amount of ammonia is of importance as throwing light upon the existence of disturbed metabolic conditions of obscure origin. The average normal percentage of urea, he says, varies from 2·25 per cent. to 2·5 per cent., and the total amount excreted in 24 hours from 25 to 30 grammes, or about 80 per cent. of the total urinary nitrogen. The normal ammonia contents of the urine are about 0·7 gramme in 24 hours, or only 3 per cent. of the total nitrogen. For its determination Mr. Weiss has constructed a special tube on the Malfatti principle. 10 cubic centimetres of urine are neutralised with decinormal solution of soda and the acidity is noted. Next 3 cubic centimetres of formaldehyde solution (40 per cent.) are added after this has been neutralised with decinormal solution of soda, phenol-phthalein being used as an indicator. When this is added the red colour will disappear, and thereupon a further quantity of decinormal solution of soda is added until the red colour is restored. The quantity of decinormal solution of soda used (after the addition of the formaldehyde) corresponds exactly with the ammonia present. The estimation of total sulphates can be done similarly in a few minutes. A specially graduated tube of a large capacity with a very narrow closed end on one side is used for the purpose. 25 cubic centimetres of urine are filtered into a beaker and 25 cubic centimetres of distilled water are added. The mixture is boiled with 5 cubic centimetres of hydrochloric acid for 10 minutes and poured into the tube. Next a hot solution of barium chloride is added which precipitates the sulphates as barium salts. The graduation marks on the tube indicate directly the amount of total sulphates contained in one litre of urine. Mr. Weiss describes further, in conjunction with Professor Salkowsky, some equally simple methods for the determination of acidity and of indican (approximately), a test for urobilin, and a method for the estimation of the amount of oxygen required by a given specimen of urine for its complete oxidation.

CHLOROFORM DROPPER-AMPOULES.

To the Editor of THE LANCET.

SIR,—Our attention has been drawn to the "New Invention" notice by you in your issue of Jan. 1st, 1910, p. 37, and we take the liberty of pointing out that this "invention" was brought out by us at Detroit about a year ago. We have pleasure in enclosing herewith a booklet on the subject issued early last year, and also an advertisement that appeared in many of the American medical journals last July and subsequently. The dropper-ampoule was introduced by us to Dr. F. H. McMechan, who is a well-known anæsthetist in Cincinnati, and no doubt he has found it so serviceable that he thinks it ought to be more widely taken advantage of.

We remain, Sir, yours faithfully,

Beak-street, W., Feb. 18th, 1910. PARKE, DAVIS, AND CO.

A DISCLAIMER.

To the Editor of THE LANCET.

SIR,—I have had sent to me from a temperance organisation in Sheffield a copy of a tract concerning alcohol. I have no complaint to make about the bulk of its contents, which are mostly extracts from a newspaper article written by me in reply to a criticism in that newspaper concerning an address given here by me. But at the end of the tract are five lines of description of my qualifications, &c. (information evidently obtained from the Medical Directory), and an incorrect statement as to authorship. Of the insertion of these five lines in the tract I most strongly disapprove. Until I saw the tract on Feb. 17th I knew nothing of its existence or of the organisation which published it. I at once wrote to the secretary, asking him to stop as completely as possible the circulation of the tract in its present form, and in any future copies to block out the personal paragraph to which I strongly object.

I shall esteem it a favour if you will kindly publish on my behalf this disclaimer for the information of any members of my profession who read tracts, and who might happen to see one of these.

I am, Sir, yours faithfully,

Ramsgate, Feb. 19th, 1910. G. E. HALSTEAD.

THE INTER-HOSPITAL RUGBY CUP-TIES.

First Round (continued).

MEN who played for their hospital in the "eighties" and early "nineties" would find the competition greatly changed. The colonial reinforcements with the seven-year rule have firmly established the leading schools in the narrow circle of first-class "Rugger." This is not an unmixed blessing. The struggle for the cup is now an incident, if an important one, in an arduous season.

Guy's Hospital v. *Charing Cross Hospital.*

Guy's have a lengthy and exhausting fixture list. A majority of the side have, in addition, half-a-dozen hard games with the United Hospitals against the Universities and Services, while under another name—Kent—they are at present in the semi-final of the county championship. As the season advances the danger of staleness becomes of increasing importance. And so Guy's came to this game to take things easily. With Charing Cross it was very different. For them it was the end of the season. If a man were crocked he had the summer months to mend matters. The side was all out for a win. Guy's, too, relying on combination and the finer points of the game, were greatly handicapped by the gale. They sadly missed J. P. Jones. The Kent captain is the inspiration of the side. This Welshman is a great tactician, and he means much to Guy's. "The Cross" relied on the fierce dash and speed of the forwards. Their footwork upset the superior combination of a better side. Guy's struggled hard to gain a winning lead. The tackling was too good. They were fortunate to cross over with a lead of 5 points. This was the result of a fine sprint and kick by Stokes, which must have greatly pleased his father, who was on the touch-line. Many will remember the father as one of the best backs Guy's ever had. His son is following worthily in his footsteps. After the interval "The Cross" played harder than ever, but there was no finish to their efforts. Still, Guy's supporters were relieved when late in the game Stringer swerved through all opposition and Guy's had won by 8 points to nil.

Charing Cross.—H. Smith (back); L. L. Wight, D. W. Pailthorpe, A. M. Jones, E. H. Morris (three-quarters); A. Brewster and M. A. Farr (halves); B. F. Eminson, A. B. Rosher, J. Williamson, E. S. Calthrop, G. W. Royle, J. C. Hallinan, C. Symons, and R. Rail (forwards).

Guy's.—G. E. W. Lacey (back); L. B. Stringer, H. Lee, G. C. Covell, and A. L. Stokes (three-quarters); J. G. Saner and C. H. Medlock (halves); G. R. Hind, W. E. Williams, A. H. Crook, C. Gibb, A. V. Moberly, C. S. C. Roberts, W. S. Stranach, and R. S. Kennedy (forwards).

Middlesex Hospital v. *St. Thomas's Hospital.*

Possibly it was a coincidence that this game, the best of the series to date, attracted the biggest crowd to Richmond. There were no internationals, no individual brilliance, only the promise of a hard and equal fight. And this was fulfilled to the letter. It was real football. The individual buried in the side. The zest and keenness of the whole thing was good to see and no one spared himself.

The Middlesex three-quarter line is serviceable in attack. Last year these strong runners carried the side through stiff rounds to the final. If chances came their way it was felt that they might do so again. Thomas's, on the other hand, well aware of this danger, relied on their pack to break up the attack and to chance individualism to settle the issue. And so early in the game one saw a great struggle for mastery in the scrum. At first the Middlesex forwards held the Thomas's pack, and then one caught glimpses of the excellence of Gabe and Penny. Soon the Thomas's forwards took charge of the game. They were well supported at half. The day went in favour of the side with the pack in the scrum. Then in the second half Middlesex, only 2 points behind, with a strong wind helping and plenty of scoring power, seemed to have a chance of turning the tide. But the Thomas's forwards came again and won the game on their own. The final score, 13 points to 8, is a fairly accurate estimate of the superiority of Thomas's in the scrum.

St. Thomas's.—L. Meakin (back), J. Jeppe, F. B. Skrimshire, C. W. Sparks, J. J. Street (three-quarters), Ll. R. Warburton and H. R. Friedlander (halves), W. G. Marsden, J. F. Taylor, J. S. Sloper, R. C. Wingfield, R. P. F. Cory, H. V. Welch, H. C. Bassett, and G. R. Wilson (forwards).

Middlesex.—C. Proctor (back), J. Rogers, E. A. Saunders, W. M. Penny, and H. W. Gabe (three-quarters), G. R. Craig and A. L. Rackam (halves), J. Harrison, A. B. Cardew, W. H. Saunders, W. G. Masefield, W. H. Eggar, E. R. Dearmer, G. M. Tuke, and R. Fagan (forwards).

"INGRATITUDE."

To the Editor of THE LANCET.

SIR,—In your issue of Feb. 19th you called our attention to the ingratitude of Dixon, who stole a purse belonging to the physician whose mind was fixed on Dixon's moribund baby. Before your readers can draw any just conclusion from the paragraph on this "disgusting exhibition of human ingratitude" they must know something of the individual Dixon and of the circumstances which so curiously converted "gratitude" into "mean theft."

We most of us remember the acquittal of the hungry man who dashed into a baker's shop and stole a loaf of bread without the least sign of gratitude to the baker who had been up all night exercising his art. If this parallel does not apply to Dixon, I know that it applies to a very large percentage of the men who bring moribund babies to the Royal Free Hospital every winter. The superabundance of riches implied in the leaving of *two* purses on the table is enough to put a millionaire's will-power in abeyance! What is, however, the remedy for such ingratitude? As a modern physician my mind reverts to prophylaxis. A simple measure is the provision of ample pocket space for women physicians. Another not quite so simple has been alluded to in THE LANCET. It lies in the prevention of destitution through the adoption of the proposals set forth in the Minority Report of the Poor-law Commission.

If all the preventive measures set forth in the Report had been set working in the year 1877 Mrs. Dixon, instead of scouring flagstones at 2*s.* 6*d.* a day, would herself have brought a healthy breast-fed baby to the Royal Free Hospital for some slight indisposition. This would not have upset the house physician's equanimity, and Mr. Dixon, instead of living on the country's rates and taxes, would have come in an off hour from work and dropped a coin of gratitude into the Royal Free Hospital collecting box. I am, Sir, yours faithfully,

M. F. T.

WANTED—TREATMENT FOR HEADACHE.

Cambria will be much obliged for any suggestions as to cause and treatment in the following case. A male patient, aged 65 years, suffers from headache on waking from sleep. He has no evidence of kidney disease or arterial sclerosis. He has a mitral systolic murmur, but no recent rheumatism. He is a hard-worked successful business man, with occasional slight nervous breakdowns, but his headache occurs on waking, and has done so for five years, whatever his general condition. He is a nose-breather, but has a deflected septum and a nasal spur. The headache does not depend on position, and it occurs equally after lying down in bed or sleeping in an upright position in a chair.

AN EXPLOSIVE COUGH MIXTURE.

Practitioner writes:—"Would some one of your readers be kind enough to inform me what is it that makes a cough mixture having for its menstruum mist. amygdal. co. sometimes blow up, and what can be done to prevent such an untoward occurrence? I may add that the mixture consisted of squill, 'hippo,' morphia, and nitrous ether."

PSYCHO-PHYSICAL PARALLELISM.

F. G. C. writes:—"It may perhaps interest some of your readers to note that in the *Journal of Mental Science* for January, 1906, there was a paper on the Study of Insanity, in which reference is made to the study of psycho-physical parallelism on the lines elaborated by Lugaro in his work reviewed in your columns last week."

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 20, Hanover-square, W.

MONDAY.

ODONTOLOGICAL SECTION (Hon. Secretaries—D. P. Gabell, E. B. Dowsett, J. Howard Mummery): at 8 P.M.

Paper:
Mr. Stanley P. Mummery: Some Experiments on the Relative Susceptibility of Different Teeth to Dental Caries.

Casual Communications:
Mr. Charles A. Clark: (1) A Sterilizable Film-holder for X Ray Work; (2) A Method of Ascertaining the Relative Position of Unerupted Teeth by Means of Film Radiographs.

TUESDAY.

THERAPEUTICAL AND PHARMACOLOGICAL SECTION (Hon. Secretaries—J. Gray Duncanson, H. Charles Cameron): at 4.30 P.M.

Adjourned Discussion:
On Proprietary, Patent, and Secret Remedies (opened by Prof. W. E. Dixon on Feb. 1st).

Paper:
Dr. John Cowan: The Treatment of Infective Endocarditis.

PATHOLOGICAL SECTION (Hon. Secretaries—L. S. Dudgeon, C. Bolton) at King's College, W.C.: at 8.30 P.M.

Laboratory Meeting.

FRIDAY.

LARYNGOLOGICAL SECTION (Hon. Secretaries—George C. Cathcart, L. Hemington Pegler).

Cases and Specimens.

SECTION OF ANÆSTHETICS (Hon. Secretaries—Llewelyn Powell, R. W. Collum): at 8.30 P.M.

Discussion:
On the Choice of an Anæsthetic (opened by Dr. Dudley Buxton).

SATURDAY.

OTOLOGICAL SECTION (Hon. Secretaries—Hunter F. Tod, H. J. Marriage): at 10 A.M.

Cases and Specimens:
Mr. A. H. Cheatle: Twenty Specimens of Chronic Middle Ear Suppuration and its Sequelæ.
Mr. W. Milligan: (1) Pedunculated Papilliform Growth springing from the Posterior Border of the Cartilaginous Meatus; (2) Large Naso-pharyngeal Growth in a Boy; (3) Demonstration of Kuhn's Instruments for Per-oral Intubation.
Dr. Dan McKenzie: (1) Case with Well-defined and Transitory Menières Symptoms; (2) ? Othæmatoma.
Dr. Alexander Sharp: Audible Tinnitus.
Mr. J. Arnold Jones: Mucous Polypus Presenting at the Pharyngeal Orifice of the Left Eustachian Tube in a Man Suffering from Bilateral Chronic Adhesive Otitis Media.
Mr. Hunter Tod: (1) Osteo-myelitis of Temporal Bone; (2) Subdural Abscess and Encephalitis of Left Temporo-sphenoidal Lobe, with Aphasia.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—8.30 P.M., Sir John Broadbent, Bart., M.D.: Some Difficulties in Prognosis in Cases of Atypical Pyrexia in Pneumonia in Adults.—Dr. R. Miller: On Some Cases of Protracted Pyrexia in Pneumonia in Children.

HARVEIAN SOCIETY OF LONDON, Stafford Rooms, Titchborne-street, Edgware-road, W.

THURSDAY.—8.30 P.M., Discussion on Labour in Contracted Pelves, with Special Reference to the Justification of Pubiotomy (opened by Dr. G. F. Blacker).

NORTH-EAST LONDON CLINICAL SOCIETY, Prince of Wales's Hospital, Tottenham, N.

THURSDAY.—4.15 P.M., Clinical Cases.

RÖNTGEN SOCIETY, 20, Hanover-square, W.

THURSDAY.—8.15 P.M., Mr. C. A. Clark: Dental X Ray Technique. Exhibition of Apparatus.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

TUESDAY AND THURSDAY.—5 P.M., Dr. J. S. Bolton: A Contribution to the Localisation of Cerebral Function, based on the Clinico-Pathological Study of Mental Disease. (Goulstonian Lecture.)

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

MONDAY AND WEDNESDAY.—5 P.M., Dr. P. Thompson: Some Embryological Problems in Relation to Medicine.
FRIDAY.—5 P.M., Prof. R. H. Paramore: The Functions of the Pelvic Floor Musculature, and its Relation to, and Co-ordination with, the other Musculatures enclosing the Visceral Mass.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. G. Little: Clinique (Skin). 5.15 P.M., Lecture:—Mr. A. W. Mayo Robson: The Surgical Treatment of Certain Cases of Glycosuria.
TUESDAY.—4 P.M., Dr. L. Guthrie: Clinique (Medical). 5.15 P.M., Lecture:—Mr. E. L. Evans: The Manipulative Treatment of Congenital Dislocation of the Hip.
WEDNESDAY.—4 P.M., Mr. A. P. Gould: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. E. F. Bashford: The Results of Experimental Cancer Research.
THURSDAY.—4 P.M., Sir Jonathan Hutchinson: Clinique (Surgical). 5.15 P.M., Lecture—Mr. C. Dent: After-effects of Head Injuries.
FRIDAY.—4 P.M., Mr. H. Tod: Clinique (Ear, Nose and Throat).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eyes. 5 P.M., Lecture:—Mr. Ll. Williams: Examination and Treatment of Children's Teeth.
TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 12.15 P.M., Lecture:—Dr. Pritchard: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. S. Taylor: Cerebral Hæmorrhage.
WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Diseases of the Throat, Nose, and Ear. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eyes. 2.30 P.M., Dr. Robinson: Diseases of Women. 5 P.M., Lecture:—Dr. R. Morton: X Ray Diagnosis.
THURSDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Pathological Demonstration:—Dr. Bernstein. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eyes. 5 P.M., Lecture:—Mr. Baldwin: Practical Surgery.
FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. Medical Registrar: Demonstration of Cases in the Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Mr. Etherington Smith: Clinical.
SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Diseases of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eyes. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. H. Evans), 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. W. Carson). 4.30 P.M., Medical In-patient (Dr. A. J. Whiting).
TUESDAY.—Clinic: 10 A.M., Medical Out-patient (Dr. A. G Auld). 2.30 P.M., Operations. Clinics:—Surgical (Mr. W. Edmunds); Gynæcological (Dr. A. E. Giles). 4.30 P.M., Lecture:—Mr. J. H. Evans: Some Points in the Surgery of the Aged.
WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Dr. H. Pirie)
THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel).
FRIDAY.—10 A.M., Clinic:—Surgical Out-patient (Mr. H. Evans). 2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie).

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Mr. Turner: Surgery. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 4 P.M., Special Lecture:—Mr. R. Lake: Operations in Tubercle of Larynx.
TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. Carless: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin. 3.15 P.M., Special Lecture:—Mr. Carless: Actinomycosis.
WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye. 3.30 P.M., Special Lecture:—Mr. Cargill: Ophthalmoscopic Appearances in Typical Diseases of the Fundus Oculi.
THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4 P.M., Dr. Sale-Barker: Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.
FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.
SATURDAY.—2 P.M., Operations. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.

TUESDAY.—3.30 P.M., Clinical Lecture.—Dr. R. Russell: Peripheral Neuritis
FRIDAY.—3.30 P.M., Clinical Lecture:—Dr. Ormerod.

WEST-END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, 73, Welbeck-street, W

MONDAY.—3 P.M., Clinical Demonstration: Dr. H. Campbell.
TUESDAY.—5 P.M., Clinical Demonstration:—Dr. J. Mackenzie.
WEDNESDAY.—3 P.M., Clinical Demonstration:—Dr. F. Palmer.
FRIDAY.—2 P.M., Clinical Demonstration:—Dr. P. Stewart. 5.30 P.M., Clinical Demonstration: Dr. E. Macnamara.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.

TUESDAY.—3.45 P.M., Lecture:—Mr. Stuart Low: Accessory Sinuses.
THURSDAY.—4.30 P.M., Clinical Lecture:—Mr. G. French: Suppuration of the Accessory Sinuses.
FRIDAY.—3.45 P.M., Lecture:—Mr. Stuart-Low: Accessory Sinuses.

ST. MARK'S HOSPITAL FOR CANCER AND OTHER DISEASES OF THE RECTUM, City-road, E.C.

MONDAY.—5.30 P.M., Lecture:—Mr. F. C. Wallis: Stricture (Non-malignant).

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, Leicester-square, W.C.

THURSDAY.—6 P.M., Chesterfield Lecture:—Fungus Diseases of Hair: I., Hyphogenic Sycosis; II., Tinea.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (28th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.).

TUESDAY (1st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College 2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (2nd).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan 9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (3rd).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, (9 A.M., Major, 2 P.M.).

FRIDAY (4th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.) Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor 9 A.M., Major, 2 P.M.).

SATURDAY (5th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

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THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. II. of 1909 were given in THE LANCET of Dec. 25th, 1909.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Feb. 23rd, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Feb. 17	29·39	S.W.	0·05	85	56	37	50	50	Raining
,, 18	29·41	S.W.	0·10	70	53	48	47	48	Cloudy
,, 19	29·16	S.W.	0·05	77	53	46	48	51	Overcast
,, 20	29·35	W.	...	74	50	43	43	46	Fine
,, 21	29·36	S.W.	0·25	85	51	45	42	45	Fine
,, 22	29·75	S.W.	...	52	48	43	45	46	Overcast
,, 23	29·83	S.W.	0·40	61	46	41	41	41	Overcast

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